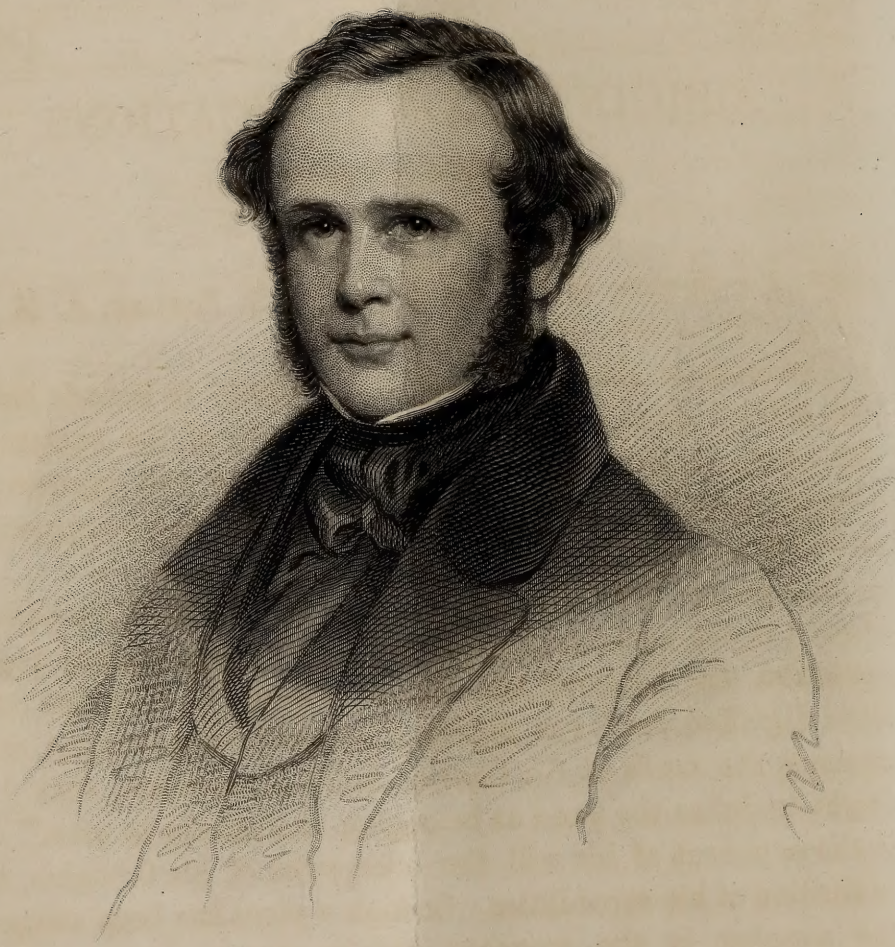

Horace Wells

Discoverer of Anaesthesia demonstrated in his own person.
Dec. 11, 1844. Hartford, Conn.

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ORIGINAL COMMUNICATIONS.

"Qui docet discit."

ART. I.—*Surgery of the Hand.* By E. T. EASLEY, A. M., M. D., Little Rock, Ark.

The scope of the present paper is designed to include briefly the several propositions; 1. Some account of the anatomy of the part; 2. The mortality from operations and injuries; 3. Conservatism as applied to its surgery; and 4. Some suggestions as to operative procedures.

Man in his exalted station at the head of the *Mammalia* is classed in the distinct order *Bimana*, and is its solitary representative, for however the recent doctrine of evolution may have dignified the lower orders, the sincere physiologist must concede the truth of Sir Charles Bell's observation, that "we ought to define the hand as belonging exclusively to man." It is the exponent of his will, the interpreter of his thoughts, the indication of his capabilities. So high a place has been assigned the member in the economy that by common consent such figures, as "the labor of hands," "that which thy hand findeth to do," etc., have been accepted as properly denoting the working ability of the individual. Its admitted title to such high distinction is founded on its symmetry, the excellence of its mechanism, its perpetual employment, and the vast range of its usefulness. Additionally it claims consideration of the medical man on account of its constant exposure, its consequent liability to accidents and the grievous character and extent of its injuries. The prominent peculiarity of the human hand, which in

itself, according to Cuvier, constitutes the hand properly so called, is its power of prehension, a faculty dependent on the size and strength of the thumb, and only perfectly exhibited in man. The human hand, far superior to the part in any other animal, grasps readily all objects within its compass, even to the most minute, and the thumb may be brought in apposition to the extremities of the fingers, singly or at once. It is not, therefore, asserting too much to say that man's commanding eminence in the scale of existence is largely due to the completeness with which the hand responds to the suggestions of his mind. It follows necessarily that the organ claims a high interest in surgery and surgical anatomy. The practitioner who would undertake any serious operative procedure in a part so perfectly organized and important, ought not only to fortify his judgment with a knowledge of broad facts and principles, but he ought also to command a very accurate acquaintance with the structures involved. For this purpose, in the first place, nothing can supply the thorough work of the dissecting-room, and for the physician remote from the medical centres, the many splendid plates of regional anatomy are available; those of Maclise (17, 18 and 19) have perhaps never been excelled.

Anatomically the metacarpo-phalangeal and phalangeal joints are all perfect examples of ginglymoid articulations, admitting only the two motions, flexion and extension. Two lateral ligaments of great firmness, an anterior ligament less so, and the extensor tendon behind compose the ligamentous apparatus of each joint. The articulation of the first and second phalanx is indicated as precisely opposite the fold of skin on its palmar surface, that of the second and third a little below the same guide. The capsular ligament of the metacarpo-phalangeal joint is loose, which permits the position of the articulation to be seen by drawing on the finger. It will be found in the adult about an inch above the interdigital commissure. The radio-carpal joint is located in the direction of a curved line from one styloid process to the other about four lines in height, estimating from the middle of an imaginary base line between the given points. Variations in the contour of the hand are to be expected, but the directions

given will for the most part be serviceable. The wrist, according to Gray, is most correctly designated an arthrodial joint, "since it is incapable of rotation, one of the characteristic movements of enarthrodial articulations." On the palmar face the skin is normally thick, and the subcutaneous cellular tissue, through which the arteries and nerves run, very abundant. From this surface, as we shall see further on, it is best when practicable to secure flaps for stumps in amputation. Underneath this dense structure, the synovial membrane everywhere invests and is reduplicated upon the tendons and ligaments, and its inflammation, to which it is subject, even on trivial provocation, becomes, owing to its extensive area, a matter of grave import. It may be as well to say something now of the nature and destructive effects of this inflammation. Any effusion under the dense skin and connective tissue of the palm is prone to pass into suppuration hastily, and quickly imperils the integrity of the parts. The morbid action however limited, its nidus readily invades the contiguous structures, the confined pus penetrates, literally burrows in all directions, until molecular death at some infirm point makes for it an outlet. Should the drainage now be sufficient, the inflammation may be regarded as having spent its force, and the processes of repair, ever on the alert, will set themselves to the task of casting off effete material and building up the waste places. Fortunately, in this enumeration of disasters what is true of phagædena in other localities may be stated here; the blood vessels hold out longest against its ravages, nevertheless they often give way, especially when antecedently diseased. It has been stated that a very slight cause may inaugurate such a course. My friend, Dr. Dibrell, has recently very kindly shown me a typical case of the sort. The trouble had been excited by the puncture of a small fish fin in one of the fingers, a mishap not uncommon on our Southern rivers. The inflammation becoming intense, the palm of the hand was rapidly disorganized, and the diseased action spreading around to the dorsal aspect, several of the phalangeal bones were left exposed by the separating sloughs. When such inflammation of the part has once fairly begun, and the integument becomes hot and tense, there is no time to tempo-

rize; immediate relief must be afforded. The most obvious and rational thing to do is to obtain free drainage by adequate incisions. If the cutting has been too long delayed, stimulating poultices may be required to promote the separation of tissue already dead. In the deeper forms of paronychia the morbid action is inclined to follow the course above described, and any expedient less decisive than an early and bold use of the knife is hardly palliative, and apt to result in destruction or permanent crippling of the phalanges implicated. Before splitting the palm in the vicinity of the annular ligament the relations of the palmar arches and median nerve should be distinctly recalled; injury to the latter would result most likely in persistent pain and impairment of function, while wounding the vessels would give rise to bleeding troublesome to control. Physiologically considered, no arrangement could more perfectly subserve the purposes of sensibility and nutrition than that of the nerves and blood vessels in the forearm and hand. It can not be conceived that a piece of mechanism could more consummately realize the ends for which it was made. It is absolutely perfect. An exact knowledge of the relations of the very abundant vascular supply of the part is always essential. Operating in this fullness of knowledge, the surgeon is enabled not only to command hæmorrhages, but secures for his stumps in amputation sufficient nourishment. The principal blood vessels and nerves of the forearm descend upon the anterior aspect of the wrist, and are distributed mostly to the palm of the hand, as on this surface a larger number and variety of structures are to be found than on the dorsal. The radial and ulnar arteries occupy respectively the borders indicated by their names; they are comparatively superficial; the ulnar least so, until it reaches the palm, where it forms the superficial palmar arch, and gives off branches of communication with the deep palmar arch of the radial vessel. The dorsal arch is formed by a radial branch and the posterior interosseous artery. So free is the anastomosis of these important vessels that in the hand, practically speaking, they may almost be regarded as one. It is obvious that bleeding from any considerable vessel in the hand may not be arrested by ligation of either the radial, ulnar or interosse-

ous, when they must all be tied, or it may be necessary to secure the humeral vessel. What effect obstruction of any current would have upon the bleeding may be ascertained by pressure on the vessels supposed to supply the wounded point. Although Dr. Joseph Pancoast and others have ligated all three of the vessels at the same time, the exceeding difficulty of so complete an operation, and the extensive violence it is likely to inflict are manifest. Ligation of one branch with compression of the other may serve a useful purpose. In a case of wound of the radial between the metacarpal bones of the index finger and thumb, the hæmorrhage was permanently arrested by ligation of the vessel in the wrist and compression applied to the ulnar at a point opposite. Unquestionably the great and important rule distinctly laid down by John Bell, and so copiously illustrated by Guthrie, of enlarging the wound and ligating the vessel there, is not always appropriate or practicable in wounds of the palmar arches. The exceptions to this rule of practice are of course rare, for the plain reason that, however we may stop the direct current by tying the main trunk, such a measure does not interfere with the anastomosing circulation. So free are the inosculations between the anastomosing vessels that ligation of the brachial often fails to stop the loss of blood. A second great principle in the treatment of wounded arteries must be insisted on in this instance—the ligature is to be applied to both ends of the vessel. If a different course be adopted the bleeding will continue from the distal end uninterrupted by the ligature on the proximal side of the wound. The ends of the vessel may be so retracted or obscured by swelling and coagula as to make it exceedingly difficult to tie either or both ends. Should the effort fail, graduated sponge compresses may be tried before treatment of the artery in the wound is abandoned. Of course when all minor resources prove abortive nothing remains but to secure the brachial, which is a safer and surer, as it is a less difficult, procedure than to tie the main arteries of the wrist. If bleeding in the hand has ceased no interference is justifiable; a clot may effect permanent occlusion. The people have a fashion of wrapping an immense bundle of rags, with soot, cobwebs or other foreign substances about the

part; these become saturated with blood, and the flow is undiminished. It is needless to say that such expedients are worse than futile. The wound should be cleansed, examined and more decisive measures taken, on the presumption that it is better to contend with an open than concealed enemy. It is to be remembered that the extreme flexion of the forearm upon the arm with compression at the point of injury is often entirely effective. While the superficial structures may be properly divided by exploratory incisions, it is a very questionable practice to extend them to the deeper parts of the palm. On the contrary, it seems wiser, especially if there be much infiltration, to resort to acupressure, or ligation at the wrist, or to proceed at once to the humeral vessel. The inosculations by which the circulation is maintained after obliteration of the brachial artery are those of the profundas and anastomotica. No anomalies are more common than those which occur in the distribution of the brachial; these irregularities should be well understood, and are said by Quain to occur as frequently as once in five cases. The older surgeons entertained great fears of preserving the integrity of the forearm after occlusion of the brachial, but more extended observation and statistics have proven their apprehensions unfounded. Reports from the Surgeon General's Office (part second Surgical Vol., p. 446*) record seventy-six ligations of the brachial for shot flesh wounds. Twenty-one or 27.6 per cent. of these terminated in death, a fearful mortality and one outside of all proportion to the magnitude of the procedure. The table is not to be regarded as representing the fatality of the operation in itself considered, but as indicating the gravity of its complications. It is worthy of note that the thirteen ligations for primary hæmorrhage were all successful, and that all of those, four in number, for bleeding from the palmar arches also terminated favorably. In

* I am glad to refer to this truly great work, because it affords me the pleasure of again expressing my gratitude to the gentlemen engaged in it for kindnesses received, and my admiration of their devoted and successful labors. Certainly it is by far the most exhaustive collection of medical facts and deductions ever made, and it must endure a monument of zeal and learning in the interests of the Profession.

the same work the death rate in ligations of the radial is laid down as one in five; of the ulnar as nearly one in three. There is one case of ligation of the superficial arch; recovery with anchylosis, and no instance in which the deep arch was tied. A number of examples are detailed of the spontaneous healing of arteries after shot injuries, and the fact reïterated that lacerated or shot wounds, if the artery is completely divided, effect almost perfect torsion. It is difficult to understand how the student of late military surgery can fail to see the advantages of torsion as a rational and physiological process.

Surgeons of great eminence have differed widely in their views on the interesting and important subject of the treatment of hæmorrhage from the palmar arches. The serious nature of the lesion and the fact that a fatal loss of blood has frequently occurred must justify the following citations of valuable opinions: The Surgeon General declares (op, cit. p. 437), "the subjects of such injuries are very unfortunate if they have not the services of a surgeon possessed of the requisite skill and courage to thoroughly explore the wound at the outset." Professors Gross and Agnew do not hesitate to advise that "the general rule for the treatment of wounded arteries should not be deviated from here, and that in recent punctured or incised wounds of the palmar arches, the wound should be enlarged and both ends of the bleeding vessel be tied;" the former of these distinguished authorities says (Surgery, vol. 2, p. 1017): "It is folly in such a case to tamper with the comfort and welfare of the patient by the use of compression." Lister lays down the same principle (Elements of Surgery, fourth edition, p. 400) in terms equally positive. "In the first instance," he says, "it is better to enlarge the wound, and tie the wounded vessel above and below the injured point." Mr. Erichsen (Sci. and Art. of Surgery, 1st American Edition, p. 181) and Sir William Fergusson (Practical Surgery, p. 221) urge that exploratory incisions should be very sparingly made, only in cases of very recent injury, and that every precaution should be taken not to inflict additional damage in the palm. Mr. Druitt (Modern Surgery, eighth edition, p. 623) says that ligation of the bleeding points is seldom practicable, that the pro-

priety of enlarging the wound must depend on circumstances, "and can rarely be admissible about the centre of the palm." Mr. Bryant (Practice of Surgery, p. 213) allows the propriety of enlarging the wound in hæmorrhage from the superficial arch, but records an unqualified dissent from such a proceeding when the bleeding is from the deeper vessels. Swain (Surgical Emergencies, p. 47) says: "In incised wounds of the palmar arch, the vessels can generally be secured. In punctured wounds it is not advisable to enlarge the wound, in order to secure the vessel, but a compress must be applied to the wound and a hard ball being placed in the palm, the fingers must be firmly bandaged over it. This failing, extreme flexion of the forearm on the arm, with a pad at the head of the elbow, will effectually compress the brachial, and prevent further hæmorrhage." J. W. Hulke (Holme's System, edition 1870, volume 2, p. 759) observes, "a wound of the deep palmar arch, owing to its anatomical relations, can not be freely enlarged, therefore it is necessary to depart from the rule, almost universal elsewhere, of tying the vessel at the seat of injury, and to seek some other method of restraining the hæmorrhage." Professor Pancoast (Operative Surgery, p. 67) says the bleeding points are to be secured if it be possible by separating the lips of the wound, which he admits may be dilated only a little with the knife. Authorities of distinction may be quoted for the opinion that ligation should never be practiced for bleeding from the hand. C. D. Arnott ("Lancet," volume 2, p. 141) remarks, "under no circumstances in hæmorrhage from the palm is deligation of the arterial trunks on the cardiac aspect to be deemed necessary or attempted." Professor Von Pitha, to an account of a number of these cases, adds: "I was never forced to practice ligation, as the bleedings ceased on removal of coägula completely and permanently. The first thing to be done in such cases is to freely expose the bleeding vessel by enlarging the wound, and to boldly clear away all coägula." It may thus be seen that the discussion has attained considerable proportions, extreme views even having been entertained. Amid such contrariety of teaching and practice the student may well hesitate. The difficulty of formulating any precise rules for the

conduct of such emergencies is apparent. Doubtless a due consideration should be given to the circumstances of each case. After a somewhat careful study of the subject, with proper allowance for the conditions of different cases, and conceding the general principle that each case should be treated on its indications, we may perhaps with some confidence venture to offer the following conclusions:

1. If bleeding from the palm has ceased spontaneously, the coägula should on no account be disturbed; the forearm should be flexed and partial compression of the brachial effected, in the hope, generally well grounded, that natural hæmostasis is to perfect permanent occlusion of the vessel. 2. If the hæmorrhage continues, all clots should be removed at once, the bleeding points exposed, and ligatures passed if practicable, that is to say; 3. In division of the superficial arch the wound may be cautiously enlarged, but no cutting for that purpose is admissible in the deeper fascia of the palm. 4. If it is found impossible to secure the ends of the artery in the wound, flexion of the forearm and systematic compression is to be essayed before cutting down upon the vessels in the wrist. 5. If the parts have become much infiltrated and boggy, and especially if the redness and swelling have extended to the tissues of the wrist, no time should be lost in any minor recourse, but the brachial is to be immediately secured. The ligation of the humeral vessel under such circumstances not only insures against further loss of blood, but is to be regarded as a measure strictly conservative, and powerfully curative in its effect upon the rapidly spreading inflammation. In this connection it can not be out of place to refer to Professor H. F. Campbell's successful Hunterian ligation for the relief of destructive inflammation, and his able papers on the subject.* It is proper also to add that in all the appropriate cases in which it has been tested the procedure has proven eminently conservative. The application of the principle for our present purpose may be further illustrated. Given a wound in which either or both of the palmar arches

* Manual of Military Surgery, for the use of Confederate surgeons, Dr. S. P. Moore, Chapter III on the Arteries, Richmond, 1864. Richmond Medical Journal, April, 1866, Southern Journal Medical Sciences, August, 1866.

are involved, from which blood still flows, in which the pain and engorgement are great, the tissues sodden, and the discharge foul, thin or ichorous, in such a case (not an infrequent one) the brachial artery should be immediately tied. Such a course, in this instance, not only relieves from the apprehension of hæmorrhage more surely than any other, but promises to prevent or limit the disorganization of the important structures concerned. 6. It remains to be said that if ligation in the wrist be determined upon, it should first be practiced on the vessel supposed to supply the most direct current to the bleeding point, and that compression of the opposite artery should be attempted before it also is tied.

The death rate of amputation in the hand is indicated by the general rule that the mortality increases precisely in proportion to the size of the part removed, and hence augments in exact progression as the operation approaches the trunk. This proposition, laid down by Malgaigne and established by the statistics of the Crimean war, is corroborated by the records of our own civil war, and by the uniform experience of all modern military surgeons. The circumstances of any given set of amputations being equal the rule is without exception. Circular No. 6 from the Surgeon-General's office shows (and the statement is further elaborated in the last surgical volume) a percentage of mortality ranging from 1.60 to 85.71, as the operation proceeded upward toward the vital organs. The elementary and invaluable fact, the lesson taught is that every amputation should be done as far from the body as is consistent with a thorough removal of the injured or diseased structures, and that every additional inch sacrificed impairs by so much the character of a favorable prognosis. It is worthy of remark under this head that the size of the part amputated not only influences the general mortality, but also the particular cause of death. Now death following the loss of one of the smaller parts, a finger or toe for instance, will usually be caused by some unhealthy state of the constitution, example erysipelas, whilst in one of the larger limbs, a fatal termination will oftenest be brought on by shock, secondary hæmorrhage, or exhaustion from the abstraction of the amount of blood contained in the limb and that lost during

the operation. In twenty-nine fatal cases of operations in the hand tabulated in the reports last mentioned, the causes of death were in four pyæmia, in four erysipelas, in two gangrene, in one tetanus, in eighteen different intercurrent maladies, as typhoid and camp fever and pleurisy. These records also show very conclusively the fallacy of the popular belief that the wounds in question are specially liable to induce tetanus. Of 11,369 shot injuries of the hand, only twenty-four cases of tetanus are reported, and four of these recovered. As contributing to the dead-list septicæmia ranks with erysipelas, gangrene furnished half as many victims and complicating diseases unconnected with the wounds, nearly twice as many as all the other causes combined. It may be as well here as elsewhere to reässert the observation of Romberg, founded on large clinical experience, that no remedy has been discovered to exert decided control over the acute forms of tetanus, and that a certain, though small, percentage of the milder cases recover under any plan not positively injudicious. The deduction from these statistics with which we have now to do is that death in a vast majority of fatal cases does not result from the wound or operation in itself considered, but from accidental complication or disease. Knowing then the source from which most danger is to be apprehended, it becomes an obvious duty not only to study carefully the patient's habit of life and constitution, but to eliminate as best we may all extraneous morbific or depressing influences. Other things being equal the provincial surgeon, with pure air and better subjects, is expected to furnish better results than can be obtained in the crowded wards of large hospitals. This mortality has been spoken of in general terms, and for ordinary purposes definitely enough, but for those who desire more precise information I have arranged from authentic sources a

TABLE OF MORTALITY OF OPERATIONS IN THE HAND.

AMPUTATIONS.	NO. OF	MORTALITY—PERCENTAGE.
Fingers and parts of hand	1,807	1.60
Digits only	6,870	2.
Digits and ends of metacarpal bones	413	3.2
Fingers and corresponding metacarpals	619	7.6
At the wrist	66	10.6
Forearm (average in all parts of)	1,734	13.9
Excision at wrist (partial and complete)	96	15.6

The last operation is included for the purpose of remarking that it contrasts unfavorably with amputation in the forearm, which has only furnished in 1,734 cases a mortality ratio of 13.9 per cent. Such a comparison, when the generally almost and sometimes quite useless character of the hand left after it is remembered, reduces the indications for the former procedure to still narrower limits. It is to be confessed, however, that the results achieved under Professor Lister's improved operation ("London Lancet," 1865, volume I, page 335) have done much to modify the unfavorable impression entertained of the excision. A larger experience is yet required to justify the hopes of the great teacher in its behalf.

The general proposition so widely accepted that primary amputations are attended with least mortality in military practice is well illustrated in the surgery of the hand. This may be seen by a glance at the following memoranda of

RELATIVE FATALITY AS TO TIME OF OPERATION.

AMPUTATION.	PRIMARY.		INTERMEDIARY.		SECONDARY.	
	No.	Mortality. Per Cent.	No.	Mortality. Per Cent.	No.	Mortality. Per Cent.
Forearm.....	1,009	9.6	450	23.5	184	15.7
Wrist.....	55	9.2	7	14.3	5	15.
Fingers.....	Large.	1.4	Large.	3.7	Small.	4.

Hospital and private statistics, both in this country and in Europe, appear to establish the rule that secondary operations are to be regarded with most favor in civil practice. But the observations of Lidell, as suggested by Professor Hamilton, have rendered this doubtful. At any rate, the rule is subject to many exceptions, and ought not to be asserted dogmatically. It is likely that if only those amputations in civil life for traumatic causes were examined, the result would be ascertained to favor primary operations. However the question may be decided as to other parts, there can be little hesitation, I think, in the case under consideration. I am clearly of the opinion that if an amputation be determined upon in the hand, the sooner it is done the better. There can be no just reason assigned for delay. The patient is not supposed to suffer seriously from shock or exhaustion, and will be more comfortable

and in better condition altogether with a neat and clean stump than with a painful, it may be ragged and bleeding, wound.

It has already been mentioned that an enlightened conservation of parts should be constantly practiced as tending to diminish the fatality of all amputations. While all recent surgical records incline to encourage a rational conservatism, they with equal emphasis condemn the weakness and indecision that would save limbs and sacrifice lives. To save life is the first, to save tissue the second duty of the surgeon. A proper apprehension of these facts elevates surgery to the dignity of a science; a departure from them degrades it to the level of a trade. No needless mutilation or retrenchment of structure is ever to be advised; the ablation must comprehend only what is indispensable for safety. The beauty of a stump, however desirable, is still a snare which should never betray the operator into losing sight of his main object, his first duty. If a part be condemned on sound principles, life should not be imperiled in any effort to save it because extraordinary and accidental recoveries under like circumstances have been reported. These cures, as they are sometimes called, are paraded as triumphs of skill, yet they are in truth anything else; the attendants have in reality nothing to boast of, and can take no credit for their sagacity. They are to be considered rare exceptions, and he who on the basis of an exception habitually deviates from the rule will soon find himself inextricably involved in difficulties and mistakes. It is nevertheless a welcome reflection that, while surgery encroaches upon new fields with original and modified procedures, its domain is enlarged and its freshest laurels won in the interests of a rational conservatism. Its path in this direction is disclosed alike by the authority of the ablest teachers and the most intrepid operators, precept and example. It may be said that the tourniquet, the application of the ligature, and the discovery of chloroform were chiefly instrumental in systematizing amputations. A rigid adherence to the great principle of the least sacrifice of parts is of still more recent date. Many of our predecessors certainly gave up too much of the body to the knife, and were too strongly biased by the idea of points of election in making their

incisions. The fact is this phraseology is unfortunate as applied to ablation in the extremities; the point of election should be that of necessity, and the work of the knife scrupulously limited to the removal of structures hopelessly disorganized. The operation that does no more than this, that provides sufficient integument to cover the stump, and insures that the cicatrix is well located, is under all circumstances to be approved. That which does more imperils so much the chances of recovery and inclines to the nature of an experiment. As has been stated, it is within a comparatively recent period that severe fidelity to this doctrine has been observed. Mr. Lister, great and practical as he was, said in 1846: "Operation near the ankle is inadmissible; sufficiency of soft parts for the protection of the stump can not be procured lower than the calf." And again: "I have long since come to the conclusion that the femur in amputation should not be sawn lower than its middle." We have advanced so far beyond the knowledge of this clear-headed surgeon that such dicta would now meet only the most deserved and unmeasured opprobrium. The teacher who ventured to lay down such precepts could not retain the respect of his associates. We have now learned that the loss of an amount of tissue apparently quite insignificant may turn the wavering balance of probabilities against the sufferer. All of the recent operations (in the foot for example) have been devised and practiced to this end; that is to say, with the view of saving the largest portion possible of that valuable member. Hence when Hey's amputation will answer the purpose, Chopart's is not to be undertaken; when the latter can be made available, any major procedure is not to be entertained. Pirogoff's method in the hands of Hewson and others has given results in every way superior to those obtained by more extensive or higher mutilation. Operations and their modifications in the foot have multiplied in the interests of the highest conservatism, always with the object of securing stumps as far removed from the trunk as practicable. If it be admitted that the principle is essential as relating to amputation in the lower extremity, that its claims are even more imperative in the surgery of the hand is a proposition that does not admit of debate. A single finger, a part of

one or even the most deformed digit is better than none, while if the thumb can be saved it will always be found of great service. No apparatus has ever been devised that would even tolerably compensate for the loss of phalanges. In a doubtful case, if the thumb alone is preserved, the surgeon is to be congratulated; if a finger be saved with it a great deal has been accomplished. If the retrenchment must include all the phalanges still the metacarpus is to be sedulously cared for, and a strong, firm palm (always of great value) secured if possible. In some avocations, as that of bakers, a strong smooth palm with flexible wrist, although the rest of the hand be lost, is exceedingly useful. Resection of phalangeal bones, except the last in continuity, has rarely proven satisfactory; the portion of the finger below the excision usually being a useless appendage. As a rule it is better to abridge the finger by a phalanx than to attempt resection. When the indispensable importance of the thumb in prehension is considered, it is at once apparent that in any amputation the integument should be brought over the stump at the lowest possible point. The surgeon is on no account to be deluded into making higher flaps under the impression that they will afford more shapely or attractive workmanship. In shot or machinery wounds of the digits, it frequently happens that very little cutting is requisite to fashion the stumps, and in such cases the rough points of bone are to be trimmed with forceps, and the flaps formed with the least expense of sound skin. At times, unless the surgeon chooses to descend to a feeble effort at doing a "nice job," the procedure consists simply of making the bone smooth and adjusting the soft parts over it. It is a common and wise practice to saw splintered bone at a point high enough to include its entire circumference, but the phalangeal and metacarpal bones appear to afford exceptions to the rule. Yet the exception is not to be stated too broadly, and ought to be subject to some reservation. If the patient be young, favorably conditioned, and the processes of repair likely to be active, it is almost certain that a smoothing down of the broken bone will be sufficient, and a useful amount of support for the soft tissues be saved. If, on the contrary, the subject is old, of bad or uncertain history, no

chances are to be taken, but the division of the bone should embrace its entire dimensions. In figure 1 of the illustrations, the third and fourth metacarpals, although split nearly to the os magnum and unciform, only lost by the forceps a few lines of their points; had they been separated at the articulations, it is evident that so good a palm could not have been secured. In figure 2 a similar course was pursued, and left the man over one-half of a very useful phalanx. The same plan has been observed in other instances, and found to succeed admirably. In such cases as little additional violence as possible ought to be inflicted, and if the periosteum be carefully preserved, the healing will seldom if ever disappoint the surgeon's expectations. Many of the precepts laid down for the removal of uninjured heads of bones are obnoxious to severe criticism. Too much trimming in the hand, with a view to giving it a more seemly shape, has been taught and practiced. It is doubtful in these operations of expediency if the part gains in symmetry so much as it loses in strength and usefulness. It is admitted that the heads of the metacarpals of the index and small fingers may be taken off or beveled to advantage, but there can be no valid reason for so treating those of the ring and medius, when the necessities of the case do not demand it. That the metacarpal bone of the thumb should be spared any such needless ablation is sufficiently obvious. The rule which obtains in reference to the foot, that the toes are not to be amputated at the phalangeal articulations or in continuity, does not apply to, but is rather to be considered as reversed in the surgery of, the hand. A recent and distinguished systematic writer has said that, excepting the index finger, amputation should never be performed at the first phalangeal articulation. With this opinion I can by no means coïncide. Every phalanx, or piece of one that can be preserved, should be, and no fraction of the finger thus saved will be found inconvenient or useless. The distal phalanges, although very liable to injury, and perhaps to a greater extent than the others subject to disease, really seldom require amputation. The removal of crushed portions of bone will ordinarily be sufficient, and in cases of necrosis from whitlow or the allied inflammations, exfoliation will usually

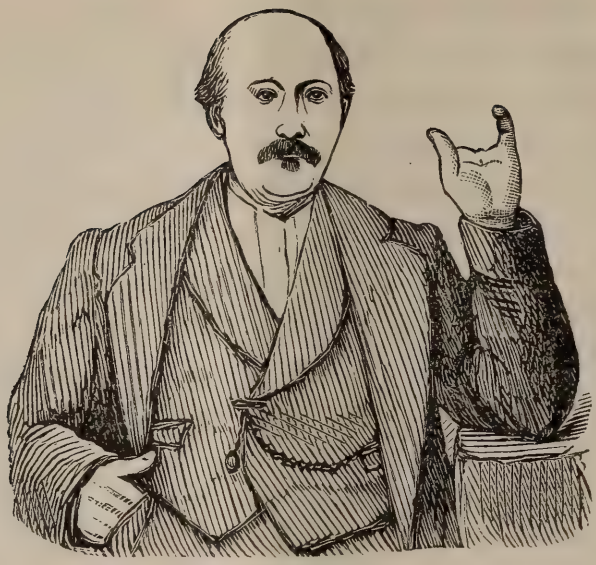

FIGURE 1.

FIGURE 2.

leave a useful end to the finger. In regard to these destructive inflammations of the phalanges, it can not be too well remembered that early incision down to and through the periosteum is the most conservative of all measures, and saves both bone and soft structures from the disastrous effects of infiltration and pressure. If excision of diseased metacarpals becomes necessary, it is probably sound surgery to take away also the corresponding digits, for under such circumstances these organs could be of little service, and being weak and deprived of support might interfere seriously with those remaining. But the rule as customarily applied to the thumb must be of doubtful propriety. Other fingers may compensate in a considerable degree the loss of one; the loss of the thumb can never be supplied, and it is therefore a safe suggestion that it ought not to be cut off on such grounds as might determine the removal of a finger. Of course, if the metacarpal bone is removed, the utility of the thumb will be much diminished, but still it will be of more advantage to the hand than any apparatus hitherto made. It is insisted then that extractions of its metacarpal bone does not always necessitate amputation of the thumb. If the flexor and extensor tendons still retain a certain amount of influence, the part will be of great service. Besides, both Sir Wm. Fergusson and Mr. Syme ("Observations in Clinical Surgery," page 38) have reported interesting and successful instances in which the course now recommended was pursued, and other examples could be presented. In all these operations it ought to be recollected as a golden rule that the palm is not to be encroached upon when it can be avoided; incision in the palmar surface is never to be carried higher up than the fold of the joint. That through the phalangeal joints is a good and simple amputation, and in it as elsewhere the surgeon is to be guided by what skin he has to utilize to cover the stump. As a rule it is not best to take off the head of the proximal bone, but if there is a paucity of flap to cover it, its removal is advisable. The two operations, of which the accompanying illustrations show the results, confirm so far as they go some principles already mentioned.

Case I.—Figure 1. General B. L., of Dallas, Texas, aged

forty-five, of fine general health and temperament, was wounded in September, 1875, by the discharge of a common fowling piece at close range, the hand powder-burned. The patient came into my hands through the courtesy of my friend Dr. Sutton. The charge of small shot, entering the dorsal aspect of the hand toward its ulnar border, had shattered the heads and part of the shafts of the third and fourth metacarpals, when taking a direction obliquely upward it had torn up the soft tissue and bones of the index, medius and ring fingers. The operation consisted in the arrest of hæmorrhage, removal of spiculæ of bone, cutting off tendons smoothly with the bottom of the wound, and adjusting the flaps. The head of the second metacarpal was sawn off only because its presence increased the tension of the flap. The splintered shafts of the third and fourth metacarpals were simply trimmed down to a point at which they would give a useful amount of support, instead of being exarticulated at the os magnum and unciform. The appearance of the member is pretty well represented in the figure, its utility and flexibility are all that could be expected or desired. In these material points it contrasts very strikingly with the cast of the result of a similar operation in the second surgical volume of the History of the War, page 1022. The stump has never been painful, and healed quickly and smoothly. As will be seen the scar is altogether upon the dorsal aspect, the palmar surface being left to its accustomed use of opposing substances brought in contact with it, without distress or inconvenience. This wound suppurated but little, and was treated on a strictly antiseptic plan, to the judicious management of which by Dr. Sutton the rapid recovery is largely to be credited.

Case II.—Figure 2 is that of Mr. John H., of Little Rock, thirty-seven years old, a man of good habits and health. The wound, a lacerated one, was sustained while the patient was engaged in working a shingle machine, and involved both soft parts and bone. The wound of the medius, beginning about the middle of its second phalanx, on the radial border, passed upward to the head of the bone, at which point the finger was completely divided. The same course in the main was pursued in this instance as with the hand of General L. A portion of

the splintered shaft of the bone was dissected away from its periosteum, and removed nearly as low down as the insertion of the dorsal interossei muscles. The sharpened eminence of bone still left was cut off smoothly with the pliers, and after cleansing the wound the redundant integument on the ulnar border of the finger was brought over to meet the short flap on the opposite side. The cicatrix extends from the radial around to the dorsal aspect, as may be seen in the picture.* Healing took place kindly and rapidly. The attachment of the flexor sublimis tendon was only partially separated, and hence there is a considerable degree of motion in the stumps below the joint. The patient feels sure that he could write if the right were the maimed hand. The cicatrix of the index finger is placed well over on the dorsal surface, and the little stump affords a most useful opposition to the prehensile power of the thumb.

In many wounds of the hands, particularly lacerated or shot injuries, where so much depends upon the amount of structure to be utilized and so much upon the ingenuity of the surgeon, it is not easy to indicate precise methods. If the operator is disposed to be an economist, his procedure may with advantage be varied to suit almost every case. The palmar surface of the hand, with its soft cushion of adipose and areolar tissue and its rich vascular and nervous supply, furnishes an ideal structure for fashioning the covering of stumps. It ought whenever practicable to be used for this purpose. Beside healing quickly, this skin has the additional advantage on the face of a stump of being less tender and liable to injury than that upon the other side, its normal situation and organization adapting it to the contact of all external objects. The different forms of amputation in the hand, as in other parts, are but modifications of the leading general methods, flap and circular. If a mixed procedure be practiced, especially in disarticulation, the least important flap should be made first, and that containing the vessels or designed for the chief covering of the stumps be formed after the separation of the bones is completed. Of course when it can be done, healthy tissues should be selected for the

* For this and other like favors I am much indebted to the skill and patience of Mr. George E. Shaeffer, Photographer of Little Rock.

formation of flaps; nevertheless they may be made from inflamed or infiltrated parts, as under drainage and suppuration the swelling will diminish, with little danger of gangrene, or interruption to the reparative process. Both McLeod and Mr. Bryant have expressed themselves decidedly on this point, and the latter has not scrupled to assert that he has often had "brawny" flaps unite at least as rapidly and well as others not so affected. In the phalanges Ledran's amputation by two lateral flaps, as well as that by dorsal and palmar flaps of equal size, has been adandoned. If the conditions of the wound admit it, there can be no better procedure than that known as Lisfranc's first method, the single flap operation. A curvilinear incision with its convexity looking downward is made over the joint (if the amputation be at a joint), disarticulation accomplished from the dorsal, and the principal flap cut from the palmar surface of the digit. Lisfranc's second method does not differ from this, except that the palmar flap is first fashioned by transfixion and disarticulation made from that surface. Amputation of all four fingers at once at the metacarpo-phalangeal joint, or amputation at the carpo-metacarpal junction may be done by a modification of the process for the removal of a single finger by Lisfranc's first method. The amputation through the radio-carpal articulation on the same principle, by single flap (method of Denouvillier), is a good one. The first incision is across the dorsal surface, between the styloid processes, its convexity looking downward, the joint is then opened, when a sufficient palmar covering for the stump may readily be secured. This latter, in its best shape, is really the mixed method first practiced by Mr. Carden in 1846 (described in "British Medical Journal," April, 1864), and so applicable to the leg and forearm. It is doubtless best to remove the projecting styloid processes, but it is not essential, for it has been shown by the recent modifications of Pirogoff's operations in the foot that sawn bone as well as muscular and skin flaps grow firmly on incrustations of cartilage. While amputation at the elbow has for a good while constantly grown in favor, that at the wrist has received a late and hesitating encouragement. It is alleged that its statistics in comparison with those of operation in the forearm are bad, that in

146 cases tabulated by S. W. Gross the mortality was 46 per cent., and that the Crimean surgeons lost nearly half their cases. These comparative estimates of the death rates are not borne out by the latest records. In Circular No. 6 from the Surgeon-General's office, of thirty-six cases of wrist amputation, at that time determined, the mortality was put down at 5.55 per cent., evidently much too low an estimate. In the extensive series of cases presented in the second surgical volume the fatality is given, as already mentioned in this paper, at 10.6. If we contrast with this result the ablation in the forearm it is found that the aggregate percentage of death was of 491 in the upper third 13.4, of 676 in the middle third 11.1, of 452 in lower third 12.4, and of 128 at points not specified 37.8. Such figures as these appear to decide the question definitely in favor of the less extensive mutilation. The more conservative measure recommends itself on general principles, and if the articular ends of the radius and ulnar are unharmed and a sufficiency of integument exists to cover them, any higher amputation is unjustifiable.

So far as I can ascertain no excision of the entire carpus has ever given a satisfactory result, nor is it likely to do so. Yet it has often happened that a partial removal of these bones for caries, necrosis or injury was a highly advantageous expedient. The removal of diseased or injured metacarpal is sound practice, and particularly in the thumb, as previously stated, does not absolutely necessitate amputation of the corresponding phalanges. In such cases as little violence to contiguous structure is to be inflicted as is compatible with a thorough operation, and especially should the sheaths of the flexor and extensor tendons be guarded from harm.

The surgeon is sometimes called upon to decide between amputation and excision at the wrist. The question of precedence as to the two procedures is an interesting and important one. It may be said that the results of exsection have not been by any means gratifying, and hence many surgeons prefer amputation in the first place to the pain, inconvenience and uncertainty of the former measure. Anything like a proper notice of the subject would require more space than is now at the command of the writer.

We pass from a consideration of the principles upon which certain operations in the hand should be conducted to some observations of a general character in relation to the treatment of its wounds. There are four great indications to be observed in the local management of incised and punctured wounds, and they are as applicable to those of the hand as to any others. Briefly they are: 1. The arrest of hæmorrhage; 2. Removal of all foreign substances; 3. Coaptation of opposing surfaces; and 4. The treatment and dressing should be antiseptic and instituted with a view to limit inflammation. Under the last head I declare my belief in an inflammation necessary for healing in contradistinction to one that falls short of what is requisite in that process, or that overreaches its demands. No refinement of modern pathology can do away with the essential facts of a reparative inflammation as laid down by John Hunter; it stands out a towering landmark, and if his fertile genius had done no more, it alone confers immortality. Beside the general and specific treatment designed to limit inflammation or prevent the exhaustion and tissue waste of profuse suppuration, the local measures to be adopted readily suggest themselves, and are for the most part effective. If strangulation from tension be imminent, the swollen structures are to be drained. For wasting suppuration, the remedies with which the materia medica is now so full are at hand, and I must beg to refer my reader to what I have already said (Transactions American Medical Association, 1876, p. 569) on that subject. The benefits derived from the antiseptic treatment of wounds are now so universally acknowledged that something should be done in that way, although we may not be prepared to carry out the plan perfectly. The common cotton wool, when carbolized, is an excellent, convenient and protective substance for dressing the hand. The ship caulker's oakum is an exceedingly useful material for the same purpose, absorbing foul discharges rapidly, and acting as a potent disinfectant. I believe Dr. J. C. Nott, of Mobile, first brought it prominently into notice in the South, and I have heard his pupil, the late Dr. Gilmore, often speak of his partiality for it and commend its use. From its abundant lymphatic and blood supply it is manifest that septic

infection may readily be propagated from disorganized discharges in the hand. Under circumstances of uncleanliness and neglect, absorption of putrid material is prone to occur, all the fluids are depraved, the nervous system deranged, in a word we are called on to encounter the dread culmination, constitutional toxæmia. We need not recount the events of its course; with its appalling history we are only too familiar. It is enough to say that every stage of that history teaches plainer than any language can teach that the prophylaxis is of the first importance.

Few conditions are more disfiguring and intractable than the unyielding cicatrices in the palm from scalds, burns and other causes, and none perhaps tax more the ingenuity of the surgeon. Permanent contraction and deformity are not infrequent. If the tendons are involved, tenotomy is a very questionable procedure, and ought in most cases to be condemned. If, however, the injury is found to implicate only the skin and aponeuroses the knife may be used with much prospect of success. The inodular tissue may be divided at several points transversely, or the shortening of the palmar aponeurosis may be relieved by subcutaneous division. If the scar be cut, the object of course is to keep the hand fixed in a corrected position till healing takes place by granulation. But skin-grafting is the most rational, as it has proven itself the most successful means for the relief of the deformity. I have done the operation to good purpose; Dr. Truehart, of Galveston, and others have lately reported successful cases, and on the whole the little procedure is before the Profession well endorsed. The points in the operation are that the entire cicatrix should be dissected out, and the transplantation effected on the principles indicated in the Italian method.

ART. II.—*On Cremation.* By JOHN E. LOCKRIDGE, M. D., of Indianapolis, Ind.

A good deal has been said and written of late years on the subject of cremation, but it seems marvellously strange that so little has been written by members of the Medical Profession

on this very important subject; for the subject must be pregnant with interest in a sanitary point of view. In these few remarks that I am about to make as to the apparent and comparative merits of the present mode of burial and that of cremation, I do not wish to be understood as favoring an immediate resort to the latter method, either by custom or legal enactment; for there is a kind of moral shock attending the very idea of committing to the flames the bodies of loved ones that time and custom alone can mollify and dissipate. Whilst I would be entirely willing as regards myself to direct the cremation of my own body after death, yet I am not quite prepared to say that I would be willing to have the remains of a near and dear relative committed to the furnace; hence I do not consider myself a suitable advocate of the cause of cremation just at the present time. Neither do I propose in this paper to consider this subject in a medico-legal point of view. In so far as it would affect post-mortem examinations and dissections as affording an opportunity for the study of pathology and anatomy, and enabling investigators to still further elucidate these sciences, I think there are obvious methods by which these ends could be attained even should cremation become general, either by custom or legal enactment. As regards the present opportunity of exhuming bodies for judicial investigation in cases of poisoning and the like, I have no doubt but that some means or precautions could be devised by which justice could be arrived at.

In our city of Indianapolis, of more than 100,000 souls, with a mortuary list of more than 1,000 each year, it must be a subject of vital sanitary importance in what manner these thousand are allowed to putrefy and contaminate the earth, the air, and the water with their putrescent emanations. Some of these bodies are deposited in vaults, and the emanations therefrom we, perhaps, only breathe; a much larger number are hidden out of sight beneath the soil, and we get much less of their putrescent effluvia by inspiration, but we get the full benefit of their deliquescent juices through the water that we daily drink. Now this is no fancy sketch, for by actual experiment made in France some five or six years ago, it was ascertained that the water

within a radius of 300 feet from a cemetery was impregnated with the gases from the decaying bodies. This impregnation was not propagated by subterranean streamlets, but was communicated by actual contiguous and continuous permeation, that is from particle to particle of the soil, until it was detected to that distance from the graves. How likely it is that numerous bodies may rest and rot within a few feet or inches of some of these underground capillaries that constitute the sources of the very fountains from which we daily drink!

I know a beautiful spring in the State of Virginia that gushes out from the base of a bluff, and situated just above this fountain on the brow of this hill is a cemetery, scarcely one hundred feet from this spring. I am sure, barring an actual analysis of this water, that it is strongly impregnated from this cemetery; for although the water gushes forth as clear as crystal, yet it has a warm, soft, and brackish taste; whilst the water from a number of springs scarcely a stone's throw in another direction is very cold, pleasant, and delightful. It is more than probable that some of these graves are situated within a few feet of the rivulets that flow together and form this spring, for the pressure from the spring is very strong and sets right from the direction of the cemetery, and indicates that it has a heavy fall. So strongly have I been impressed with the belief that this water is vitiated, that on attending the church near by I have been in the habit of drinking this water very sparingly for some years; and of assuring my friends that whilst I revered the memory of my dead relatives as much as any one, yet I did not fancy drinking their putrid juices every Sabbath.

I know another fine, large spring scarcely two miles from this one, that gushes forth from beneath a hill or mountain very like this one; and it is a fact that oats or chaff thrown into a stream on the opposite side of this hill, and a third of a mile from the spring at a place where the stream seems to sink out of sight in the earth, this same oats or chaff makes its appearance afterwards in the spring. I mention these cases to show how possible, or how probable, or indeed, almost certain it is that water, not only in the immediate vicinity, but at comparatively long distances from cemeteries, is impregnated with the juices and

gases of mouldering remains; and this is effected not only by continuous permeation, but by being floated on the numerous converging rivulets that find outlets in the numerous springs and wells in the surrounding country.

Every observant and intelligent physician must know that decaying animal and vegetable matter engenders epidemics of diseases in their most fatal form; to the contrary notwithstanding, I fear that the mass of the laity are too apt to believe that if bodies be only hidden out of sight four or five feet beneath the soil, and there moulder for years and years, that there is no contamination of the water beneath, or the air and water on the surface of the earth! How often we have read of the mysterious and fatal poisoning of whole families or communities, when it was finally discovered that the *materies morbi* was imbibed with the water out of a common well, which was supplied by streamlets that ran through, or in close proximity to an old well long since gone into disuse, and which for years had been used as a receptacle for all the filth and refuse of the vicinity. I know of a most rapid and fatal epidemic of dysentery that broke out amongst several families in Virginia; that carried off nearly every member of some of these families, and that struck the community with horror, and the attending physicians with wonder and amazement. The valley in which this plague made its sudden appearance is a complete trough or ravine, only a few hundred yards in width, and bounded by very high hills on either side. It was in the month of September, and it so happened that a week or so before a large number of sheep had been killed by dogs and their carcasses were allowed to lie in the hot sun and rot on rather a high piece of ground in this valley; thus filling the air of this whole community with the intolerable stench therefrom, as well as contaminating the water with their drainage. It finally occurred to some one that perhaps these carcasses had something to do with the epidemic in question, and accordingly the remains were collected together and burnt, and the plague immediately ceased—if I am not greatly mistaken there was not a single new case after this procedure. This is only one of hundreds of cases that might be cited where there were local causes of infection. It also shows

as far as it goes that cremation merely in the open air, where the nocuous gases are merely evaporated, is sufficient of itself to arrest an epidemic; and how much more potent must the method be in which the volatilized gases are collected and returned to the crucible and thus every atom of the morbific material is consumed off the face of the earth.

In my remarks so far I have mostly confined myself to a consideration of the poisoning effects that decaying bodies have on the water we drink; but perhaps a greater objection to the present mode of burial is the liability or certainty that the air we breathe is contaminated by the intermixture of these putrid and lethean emanations for years and years after these bodies have been interred. A month or so ago I noticed in one of our city newspapers that there were 364 dead bodies awaiting interment in some of the vaults near this city. Some of these were waiting for a thaw to come that graves might be more easily prepared, others were said to have been deposited there because the friends were unable to bear the expense of a decent burial; and some for one reason and some for another. But just think of it, 364 decaying and putrescent bodies! And now past mid-spring I learn that a large number of those bodies still remain there, necessarily, perceptibly or imperceptibly, filling the air with their effluvia. A mere recurrence to the experience during the last summer of the emanations from the soap factories and the Sellar's farm near this city will throw some light on this subject. A careful calculation has been made, and it has been ascertained that if all the dead human bodies since the creation of the world were laid side by side on the surface of the earth, they would cover this whole surface to a depth of from four to six feet! Just think of the amount of putridity that has been drunk, inhaled, and even eaten, I might say, in that time!

Let us now briefly inquire into some of the apparent and real advantages of cremation in a hygienic or prophylactic point of view. In passing I will merely say that amongst the ancients it was the custom, if not the law, to consume the remains of the dead on the pyre or funeral pile. In more modern times, except during the last decade, this custom had

gone almost entirely into disuse, both in this and trans-Atlantic countries. In the whole history of our country there have been only two or three cremations of the human body. In the few cases of the process that have occurred in this and other countries since the partial revival of the custom, the open pyre has been resorted to in all cases, I believe, except that of Dr. Le Moyne, of Washington, Pennsylvania, which I will presently refer to more particularly. In a hygienic and sanitary point of view I am not prepared to say that there is that great advantage gained over the present mode of burial that is so much to be desired. It is in truth a mere evaporation of more than three-fourths of the body in the form of putrescent vapors, especially if the remains be far advanced in decomposition as is too often the case, and of necessity the air, water, and all nature must be more or less saturated with the foul and nocuous vapors. In the case of large cities at least, where a great many bodies would be evaporated daily, a large amount of these sickening vapors would be inhaled and consumed with our other *ingesta*.

It is well known to all readers of the newspapers of the day that Dr. LeMoyne, a wealthy, humane, and generous citizen of Washington, Pennsylvania, erected at his own expense last year a crematory or a kind of reverbatory furnace or crucible for the quiet, speedy, and unshocking and inodorous incineration of human remains. The distinguishing and reclaiming feature of this furnace is an attached receiver for the purpose of collecting and immediately returning to the crucible all of the volatilized loathsome gases, and thereby completely consuming them, or at least reducing them to their elemental, inodorous, and innocuous form, and leaving as a residue of the body a few pounds of common ashes.

The first body, and the only one I believe so far, that has been cremated in this establishment was that of a European titled gentleman who died last year in New York, and who directed in his will that his remains should be cremated. Consequently in December last his remains were removed from a vault, where they had been temporarily deposited to await the completion of Dr. LeMoyne's furnace, and were taken to the crematory and reduced to four or five pounds of ashes in less

than three hours, and in the presence of a large assemblage of persons, many of whom were the literati of the land. Although this was the first regular obsequies at that establishment, yet it was accomplished wholly satisfactorily, and without engendering the least odor or other exhibition calculated to shock in the least either the special senses or moral faculties.

To say nothing of the natural aversion to cremation, or indeed to almost any innovation on the long custom of disposing of our dead, it must be obvious to every one that of the different modes of obsequies, this one must be immeasurably the best in a sanitary point of view, and in every other respect, save possibly in a medico-legal bearing. If cities, towns, and communities would erect crematories at public expense, funerals and monuments, although equally as respectable, might be had at much less cost to those who are in moderate circumstances, and who are often crippled in their finances for a time because custom forces them to expend a liberal sum on such occasions. In the case of those persons who are prompted by a sense of duty or a vain ambition to conduct the obsequies on a grand scale, and erect costly monuments, such could have an opportunity of gratifying their mercenary reverence by procuring costly vases for the reception of their kindred and revered ashes, and by erecting Lilliputian mausoleums of princely munificence for their reception. In case it became desirable or necessary to remove the remains, how much more agreeable and welcome it would be to transfer a vase or casket of sacred and revered dust than to exhume and transport a formless mass of mouldering and disgusting material, which in neglected old cemeteries is just as apt to be the "clay tenement" of some one else's dead.

In concluding the remarks that I have to make on this subject at the present time, I will venture the prediction that in a quarter of a century, from the present, moral repugnance to cremation will have greatly abated, and that all classes of people will begin to view this matter from a sanitary standpoint, and that cremation will have become such a common occurrence that the newspapers will not be filled with the minute details of each case. In a few generations hence, when the population

and deaths will have been doubled or trebled, and when new, fatal, and mysterious diseases will have fallen upon the people, as has been the case in the past quarter of a century, then doubtless the people will be glad to resort to cremation, either by custom or legal enactment; and the hundreds and thousands of acres of valuable land which are now being condemned, not for resting places, but for rotting places for the dead near large towns and cities will be more profitably utilized.

It is true that there is nothing more ennobling or that is more indicative of a high degree of civilization and enlightenment than cemeteries upon which loving hands have assiduously, devotedly, and generally bestowed their toil and treasure. But the spirit of advancement and reform will exchange these vast domains, reservoirs of infection and death-dealing miasm, for miniature resting places for the dead; the latter to be adorned and beautified by devoted hands, and the former to be reserved for the production of food and raiment for the dense throng that will by that time inhabit the earth.

ECLECTIC DEPARTMENT.

"Carpere et colligere."

ART. I.—*Congenital Occlusion and Dilatation of Lymph Channels.* By SAMUEL C. BUSEY, M. D., Washington, D. C., Prof. of the Theory and Practice of Medicine, Medical Department of the University of Georgetown; one of the Physicians to the Children's Hospital; and Physician to the Louise Home. (With numerous wood engravings.)

INTRODUCTION.

The selection of a title which would convey succinctly and completely the purport of this essay has been attended with serious perplexities. Brevity, always desirable, could not be secured in any single technical word. Lymphangiectasis,* employed by Thilesen in 1856, by Petters in 1866, and by Weber

* Dilatation of lymphatic vessels.

in 1872, sufficiently indicates the characteristic morbid condition of their respective cases; but I propose to consider the phenomena of occlusion as well as of dilatation of lymph channels.

When the case numbered one first came under my observation, on the 8th of July, 1874, it was so novel and anomalous to me, that I neither knew by what nosological term to designate it, nor did I appreciate the significance of the associated morbid phenomena. The venous teleangiectasis,* and the hypertrophy of the soft and bony tissues were, apparently, obvious enough; but not until it was suggested by Dr. J. S. Billings, did it occur to me that the vesicles were, probably, the dilated extremities of lymph channels. Subsequently, with the assistance of Dr. J. J. Woodward, so kindly proffered, and after a somewhat extended research in the library of the Surgeon-General's office, I concluded that the case belonged to some one of the forms of congenital elephantiasis; but the manifest and paramount involvement of the lymphatics, together with the further fact that elephantiasis was not a uniform characteristic of lymphatic teleangiectasis, and, like others of the associated phenomena, might be either congenital or acquired, excluded the case from the category of elephantiasis proper; and believing then, as subsequent investigation has demonstrated, that the essential features of the morbid conditions consisted in the occlusion and dilatation of lymph channels, I could not accept the elephantiatic development as the primary and predominating condition.

Desjardins† claims, though I think Demarquay is entitled to the honor of first having applied the word lymphorragia, signifying "a discharge of lymph from a lymphatic vessel, owing to a lesion of its coats"; but it, like the word lymphorrhœa, signifying "the escape of lymphathic fluid by spontaneous rupture

* Dunglison, "Dilatation of far or capillary vessels;" Hebra, A tumor consisting of dilated and newly-formed capillaries and finest divisions of cutaneous vessels, and arising in the course of extra-uterine life; "Rokitansky, "A network of enlarged capillary vessels, embedded in a delicate and partly undeveloped cellular tissue, usually congenital, but may be acquired."

† Demarquay's case was published in 1853, Desjardin's in 1854.

or accidental wound, producing a fistulous opening of the lymphatic vessels," is only applicable to an occasional phenomenon.

Lymphorragia has been generally employed to designate those cases in which lymph escaped through a wound, either accidentally or intentionally made, and, hence, may or may not be associated with either dilatation or occlusion of lymph channels. Lymphorrhœa has been usually used to indicate the transudation of fluid through the walls of dilated and distended lymph vessels, and whether it indicates either the escape by transudation,* or by spontaneous rupture, it is associated necessarily with either stegnosis or distension, and perhaps with both conditions of lymph channels. In its broadest signification it simply implies the spontaneous flow or escape of lymph, a phenomenon but rarely associated with dilatation and distension of lymph channels.

Angiomata † includes "those pathological alterations of the skin which consist either wholly, or in great part, of permanently enlarged and newly-formed vessels," and may be "divided into those which contain blood vessels and those which contain lymphatics; hence lymph-angiomata would concisely indicate such alterations involving the lymph vessels of the skin—a district, in one sense, too limited for our present purposes, and, in another, inviting us into the limitless field of investigation in regard to "newly-formed vessels."

Elephantiasis may be either congenital or acquired, and may be associated with lymphangiectasis. Elephantiasis arabum, as defined and delineated by Hebra,‡ presents in the varied aspects of its development, progress, and symptomatology, many features analogous to those presented by occasional cases of lymphatic teleangiectasis. It is essentially an hypertrophy of the fibrous tissue of the cutis and of the subcutaneous connective tissue, affecting primarily the latter, and followed in the progress of further development by an increase in volume of all locally implicated, adjacent organs and tissues, caused by local disturbance of the circulation and chronic recurrent inflamma-

* Demarquay applied lymphorragia to an intermittent, and Zambaco the word lymphorrhœa to a continuous flow.

† Hebra, Diseases of Skin, vol. iii., p. 338. ‡ Loc. cit., p. 134.

tion of the vessels and lymphatics. Some have, indeed, maintained that it was a disease of the lymphatics. Whether viewed as a disease primarily involving the lymphatics, or implicating these vessels only in its development and progress, its objective features are so interwoven with lymphstasis and lymphangiectasis that it is not always easy to determine whether the lymphatics or the connective tissue of the skin was primarily affected, and it is not improbable that occlusion and dilatation of lymph channels may eventuate in the development of elephantiasis arabum.

Virchow has applied the term elephantiasis teleangiectodes, and Hebra* the word lymphangiectodes, to a form of congenital hypertrophy, usually occurring in acephalus and other nonviable monsters, and, occasionally, in viable children, which consists in lobulated cutaneous tumors "confined to a few localities or to one region of the body," and involving principally the subcutaneous connective tissue and the blood vessels of the corium, and which may remain without alteration in size or condition during life, or may become diffused and develop into a monstrous deformity, occasionally involving the whole or a greater part of the body. Notwithstanding the remarkable participation of the blood vessels in the morbid process, which, if communicating freely and extending into the cutis, may result in the formation of vascular, spongy tumors ("lobulated vascular fungus" of Schuh), or by free anastomosis, and amalgamation of the individual blood vessels form blood cavities (the "cavernous blood tumors" of Rokitansky), the essential histological and clinical features of the affection classify it as a variety of elephantiasis arabum. In this as in other forms, the connective tissue is primarily affected, and as the morbid growth may predominate in the blood-vessels or in the connective tissue, so will the hypertrophied mass partake of the nature of a true elephantiasis or of a "vascular spongy tumor," or "cavernous blood-tumor." In addition, the manifest evidence of the implication of the lymphatic apparatus is found in the "slits, gaps (Kaposi) cystoid spaces—dilated lymph spaces" observed in the masses of connective tissue; but this pathologi-

* Hebra, loc. cit., p. 159, vol. iii.

cal condition is not the predominant or characteristic feature, and this circumstance, together with the fact that the manner of formation of the blood cavities or blood spongy tumors is yet in controversy—one view maintaining that they are new growths, and the other that they are the result of morbid changes taking place in existing vessels or structures—necessarily renders the term inapplicable to the purpose in view, and would extend the limits of the inquiry beyond the prescribed boundaries.

Rejecting then these several appellations as inapplicable, for the reasons set forth, and as inadequately expressing the precise purport of this memoir, I have adopted the one upon the title-page, which, I think, conveys to the mind distinct pathological conditions of the lymph channels, and is sufficiently comprehensive to include all that is essential to the study of the nature, etiology, and treatment of those conditions.

While the purpose has been to limit the investigation to distinctly defined conditions of the lymphatic apparatus, the relation existing between elephantiatic development and occlusion and dilatation of lymph channels is so intimate that it is impossible to draw a line so definite and distinctive as to exclude from consideration certain cases and varieties of elephantiasis; and if such a separation were possible, it would necessarily impair the opportunities for study and the value of the deductions.

Elephantiasis arabum is divided by Kaposi into two forms—elephantiasis arabum cruris and elephantiasis of the genitals, which are markedly distinct from one another. Further division is made by Virchow, into elephantiasis dura, in which the whole mass of the soft tissues of the affected part seems to be converted into connective tissue, which is not only increased, "but is made up of stiff, glistening, white fibres, and is very firm, almost scirrhous;"* and elephantiasis mollis, which is characterized by a uniformly soft and gelatinous condition of the tissues. These latter forms Kaposi insists are not distinct diseases, but simply indicate different consistencies of the hypertrophied structures. E. A. C. is a local disease, affecting isolated portions of the body, more rarely symmetrical parts, usually confined to

* Hebra, loc. cit., p. 140.

one or both legs, most frequently to the right. Its immediate cause is an inflammation of the derma, involving the blood vessels and lymphatics, or primarily the lymphatics, accompanied with effusion and resulting in hypertrophy, primarily beginning in the subcutaneous connective tissue, which may extend to and involve all the constituent soft tissues of the affected part and the bony structures. The fluid effused is believed, by Tilbury Fox, to be lymph, and by Kaposi to be a fibrinogenous substance, possessing a quantity of formed elements like those of lymph. It coägulates on exposure to the air, and when first effused is slightly milky. Containing formed cells in great abundance, which are the most important material for the production of new connective tissue, it is readily understood why the hypertrophy commences in that tissue. The effusion is the result of the occlusion or obliteration of the lymphatics, consequent upon the inflammation; and though there is a contrariety of opinion in regard to the condition of the lymphatics, it is generally conceded that the lymphatic vessels and lymph spaces are dilated, and in them, lymph, rich in connective-tissue-forming elements, is stagnated. In the midst of the newly formed and dense connective tissue, cyst-like spaces filled with nutritive plasma, are not infrequently found, which are believed to be cystic dilatations of lymphatic vessels. Occasionally vesicles are formed upon the surface of the hypertrophied part, containing a clear or milky fluid, which, escaping by puncture or spontaneous rupture, coägulates on exposure to the air, and is believed to be lymph. The vesicles are the dilated extremities of lymph channels. The blood vessels, especially the veins, are involved in the morbid process. They are more numerous and of larger calibre, with sometimes thickened and sometimes thinned walls, and occasionally the smaller become occluded with coägulated fibrin.

In elephantiasis of the genitals, erysipelatous and lymphangiotic attacks of inflammation have been very rarely observed, never in cases attacking the scrotum; yet the macroscopic and microscopic observations are analogous to those of E. A. C., and find their cause in long-continued stagnation of the lymph in the interstitial lymph spaces. It is only during the later

stages that the hypertrophied and dilated lymphatics rupture and lymphorrœa takes place, and, as in E. A. C., cyst-like lymph spaces are found.

It must therefore become manifest that, to completely grasp the issues involved, certain cases, though not presenting the uniform clinical and pathological characteristics of elephantiasis arabum, are certainly well-defined instances of some form of the disease, and can not be excluded from consideration in connection with an investigation into the causes and nature of occlusion and dilatation of lymph channels. To these have been added a number of cases of congenital giant growth, with the view to more clearly illustrate some of the anomalous features presented by some of the cases, and to complete the opportunities for the study of the subject.

CONGENITAL OCCLUSION AND DILATATION OF LYMPH CHANNELS.

These abnormalities present themselves in various forms, and in association with very varied conditions of tissue development; usually they are complicated with some one of the many varieties of so-called congenital elephantiasis, which may be either a concurrent or consecutive phenomenon.

Congenital elephantiasis may involve an entire extremity, or may show itself at many places (Virchow) of the surface of the body, either in the form of regular enlargements, involving a portion of an extremity or of the trunk, or in the form of tumors, either solid or cystic, "rising in larger or smaller masses upon the surface of the skin."

Elephantiasis arabum is a condition which regularly commences with inflammatory processes, similar in character to erysipelas, in which the lymph vessels participate, and consists in the development of connective-tissue masses, which originate in the interior of the affected parts, and proceeds from a hyperplasia of pre-existing connective tissue. The condition of the newly-formed connective tissue varies, and Virchow distinguishes, according to its greater or lesser density, elephantiasis dura and elephantiasis mollis.

For the most part the congenital forms belong to the variety of elephantiasis mollis, which, when carried "into after-life, is

always partial, and does not present that lardaceous, tendinous hardness"—sclerosis, which belongs to the acquired forms. In such cases the principal seat of the change is usually in the subcutaneous tissue, and the result varies according as the morbid alteration begins sooner or later in the intra-uterine life. If the fat-tissue (Virchow) has already been developed, the appearance is not unlike a polysarcia; if the change begins when the mucous tissue still lies under the skin, then a more or less loose, soft, sometimes gelatinous, tissue continues to exist.* There are also other peculiarities which belong to the congenital forms of elephantiasis mollis. The parts embedded in the connective tissue undergo hyperplastic development, and the morbid process may involve the vessels, nerves, muscles, and even extend to the bones. The blood-vessels, most usually the veins, and the lymphatic vessels, may reach a colossal development, the enlargement taking place both in length and breadth, forming, occasionally, a varicose network, or a rosary-like dilatation, or presenting a cavernous condition.

Not infrequently, in the congenital forms, the tumors, nodes, and enlargements present a cystic formation, which Virchow and Billroth† maintain proceeds from dilated lymph channels, though it is not always easy to trace a direct connection. These cysts or caverns contain a lymphoid fluid which, microscopically and chemically, so closely resembles lymph, in all its essential characteristics, as hardly to admit of any doubt of their origin in dilated lymph vessels or spaces.

The purpose here is to group together all such cases of congenital elephantiatic development, coëxisting with cystic or cavernous formation, and such other congenital cases as more distinctly exhibit, primarily, abnormalities of lymphatic vessels, with the view of studying the condition of the lymphatic channels and the relation which such alterations bear to the associated tissue changes.

Case I.—On the 8th of July, 1874, I was called to see an infant, four days old, presenting a form of congenital disease, as hereafter described.

* Virchow, Onkologie, vol. i, p. 316.

† Beitrage zur Path. Hist., p. 215.

O. K., the father, aged 37, a strong, healthy, but not a robust man, of sallow complexion, had enjoyed excellent health all his life, excepting an occasional attack of intermittent fever, and a single attack of gonorrhœa, five years previously.

The mother was 26 years old; always healthy, robust, short stature. Had borne four children, three by the present husband, one of which died at the age of six months of "summer diarrhœa." The three living children were aged, respectively, five years, two years and six months, and the infant, the subject of this report. The two older children were healthy, well grown, robust, and represented by their parents as having been healthy from birth. No traces of syphilis, either in the parents or children, could be discovered. Both parents white; the mother Irish and the father of German descent.

The infant was born at full term, after a brief labor, unattended by any unusual occurrence. The colored midwife, in attendance, informed me that the presentation was head, and the cord was not wrapped about the neck or lower extremities of the child.

At the time of my visit the mother was doing well, and had a remarkably favorable puerperium. She worked much during her pregnancy on a sewing machine, using the right foot on the pedal, to which circumstance she attributed the affliction of her infant; adding, as a confirmation of her theory, that during the latter months of her pregnancy her right leg (corresponding with the diseased member of the child) was much swollen, and about which appeared several purplish spots. At the time of my visit the swelling had disappeared, and the purplish spots were recognized as very slightly varicosed veins.

The infant, excepting the anomalous condition hereafter to be described, seemed well, slept well and quietly; nursed; bowels acted naturally; passed water as is usual. The cord separated on the fourth day, stump healthy; color of skin natural; tongue clean; cry not peculiar; pulse, counted during sleep, 120; respiration natural, quiet, and easy; inflation of lungs complete; temperature in rectum 98.4.

The comparative sizes of the sound and diseased leg are very distinctly brought out by inspection of figures 1 and 2. The

following measurements were taken August 2, 1874:* Healthy leg at groin 7½ inches; at calf 5 inches. Unsound leg at groin 11½ inches; at calf 7 inches. No difference in length. The hypertrophy on the inside began at and involved the right pudendal labium, and extended throughout the leg, but proportionally less in the foot. The folds of the soft parts, with the flexures dipping deep towards the bones, with their surfaces closely coaptated, as if firmly pressed together, are well represented in figure 1. These folds, like the other portions of the

FIG. 1 represents the inner aspect of the right leg.

FIG. 2 represents the left or sound limb.

soft parts, yield a firm, inelastic sensation, neither indurated nor œdematous. Firmer than normal flesh of so young an infant. The partial sclerosis is uniform, and invades all the constituent tissues of the soft parts. The covering integument of the folds, as it is of the entire limb, excepting as hereafter described, is in appearance normal. It can not be pinched up, and is less movable than the natural skin over other parts. Does not pit

* Those taken July 8th lost, but believed not to differ materially.

on pressure; to a limited degree scleromatous, but not presenting the horny hardness, smooth, shining, yellowish or waxy hue, dense and parchment-like feel, and diminished temperature so characteristic of scleroderma. There is no dermatolysic growth. At the base of the third flexure—the only one below

FIG. 3 represents the outer aspect of the diseased leg.

the knee—is seen a projecting body, which seems pendant from the apex of this flexure; but this is the vesicle represented at the base of the third flexure (see figures 1 and 3), as seen on the inside of the leg, and second as seen on the outside.

The external edges of this flexure (second on outer aspect, see figure 3) are separated by the thin beveled edge of fleshy fold, which gives it the appearance as if two flexures (the middle and third on the inside) had terminated in one on the outside.

Immediately anterior to the third flexure (figure 1), near its apex, and midway between this point and the anterior margin of the tibia, is situated a nipple-shaped tumor, and farther toward the same anterior margin, and approaching nearer the knee-joint, another is located, similarly shapen, but less globular, with several depressions near its apex, at the bottom of each of which is a minute bluish-colored spot. Both these tumors are covered with the epidermis and cutis vera, are of a pale bluish-white color, the blue tinge deepening at several points, thus presenting indistinctly the appearance of a superficial vein. These bodies are near the size of a female nipple; contain fluid, which can be pressed from them, but they refill immediately upon the withdrawal of the pressure. Farther up the limb, on

the inner aspect of the knee, between the patella and the apex of the middle flexure, is located a subcutaneous cyst* (see figure 1), measuring one inch in diameter at base, and three-fourths of an inch from apex to base, movable to a limited extent, and covered by normal skin, which slips easily over and about it. It can not be diminished by pressure. The small dark spots between the middle and third flexures and the nipple-shaped bodies, those below the third flexures, and the one below the tarsal flexure, are, in the living subject, bluish-colored puncta, like venous blood seen through a thin and anæmic integument.

The tibia appears very much enlarged and illy-shapen; the femur seems natural in size. All the joints are normal, though the ankle, in consequence of the hypertrophy of the surrounding soft tissues, and, in a measure, due also to the enlargement of the tibia, presents an awkward appearance, looking as if the bones of the leg were dislocated backward from the tarsal articulation; but a careful examination of the joint failed to discover any abnormal condition or location of its articulating surfaces. The motions of the limb are perfect; the child moves both limbs alike, and does not manifest pain from manipulation.

On the outer side, (figure 3) the hypertrophy commences at the small of the back, extending downward, but not crossing the spinal column, and involves the entire right buttock and right side of the leg. In this figure the anterior margin of the limb, and the awkward appearance of the ankle, are accurately drawn. The spot just above the apex of the second flexure is a superficial nævus; another, larger, is located higher up on the right buttock; a third, still larger, is situated just below the second flexure on the calf, and a fourth on the antero-lateral aspect of the ankle. The ends of the third and fourth toes are purple colored.

The middle fold presents a broader apex surface, and the third is absent from this view. The flexure below the knee does not appear on the outside as a distinct one.

Below the middle flexure (second, as seen in figure 3), on the

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* At my visit, August 2d, accompanied by Dr. J. J. Woodward, neither of us could discover any trace of this cyst-like body.

outer and posterior surfaces of the right calf, is a cluster of vesicles—bladder-like, varying in size. (Figure 4). The largest is not greater than the end of the little finger. One is located in the centre of the nævus, and others around its border. All these vesicles are covered with epidermis distinctly marked with minute ramifying venous radicles. These vesicles, including the one rising through the centre of the nævus, are semi-translucent; contain a serous colored fluid; can be inverted by very gentle pressure; communicate one with another and apparently with a subcutaneous cavern. When any one of them is emptied and its investing epidermis is inverted, by pressure, one or more of the remaining filled vesicles become fuller and tense with the accumulated fluid. Upon removal of the pressure the emptied and inverted vesicle refills and gradually returns to its previous condition and form. When inverted the sensation of a circular firm rim, with a well-defined sharp edge, is communicated to the touch. No communication exists between these vesicles, and the nipple-shaped tumors on the inside of the leg. The fluid in the vesicles is serous. About this group of vesicles, especially along the margin of the inlying nævus, are a number of very small purplish puncta, and many cicatricial-looking spots, which the attending midwife alleges were vesicles, like those above described, but now emptied and contracted. She claims to have counted forty vesicles immediately after birth; but both statements are discredited. Above this group of vesicles, nearly midway between them and the outer margin of the patella, a large vein, represented by the dark wavy line in the cut, approaches the surface. To the touch it feels like a groove, with distinct and firm edges. No communication can be made out between it and the nipple-shaped bodies.

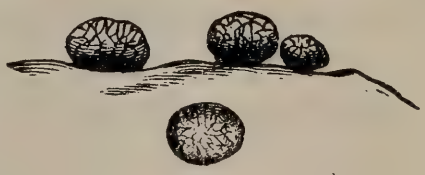

Fig. 4.

November 4, 1874.—The child has continued to enjoy, uninterruptedly, good health; has not been sick a day since its birth. To-day, four months old, it weighs seventeen pounds; is bright, playful, and hearty.

The measurements of the limbs are as follows:

	Right.	Left.
Around the calf	9½ inches.	6¾ inches.
Thigh, upper fold	14 "	10 "
Ankle	7¾ "	4½ "

Right leg one-half inch longer than the left.

April 4, 1875.	Right.	Left.
Around calf	11 inches.	6¼ inches.
Thigh, upper fold	16 "	11½ "
Ankle	9 "	4¼ "

April 4, 1875.—Right leg one inch longer than left; right foot one-half inch longer than left; two teeth. Healthy, thin. Hypertrophied parts, soft, flabby; integument less firm. Mother menstruating regularly since November. Child passes an unusual quantity of urine.

In the foregoing description I have endeavored to correctly represent the coëxisting morbid phenomena presented by this somewhat remarkable case, as they were observed during the lifetime of the unfortunate child. The subsequent details of the post-mortem examination will not verify these observations in every particular.

During the winter of 1874–5 the child suffered severely from a protracted attack of whooping-cough, which only entirely disappeared during the milder spring weather, leaving no other effect than loss of strength and some emaciation. During the ensuing months of May and June she suffered from several attacks of catarrhal diarrhœa, followed by increased debility and emaciation. These diarrhœal attacks were always accompanied with marked diminution of the size of the diseased limb; the buttock and lobular masses became much softened, and the thickened integuments flabby. In the early part of July, after having been improperly fed upon blackberries, she was seized again with diarrhœa, more severe than any preceding attack, which resisted treatment, increased in intensity, and soon eventuated in entero-colitis, marked by stools varying in frequency and consistency, more or less mixed with blood, straining, abdominal tenderness, fever, and prolapsus ani. Occasionally the dejections were exclusively blood, never exceeding in quantity a drachm, though during several days this quantity was evacu-

ated several times.* Her appetite continued moderately good. With intervals of apparent improvement, succeeded by more aggravated symptoms, she continued to suffer, losing strength and emaciating rapidly until August 12th, when she sank into collapse and died, aged one year, one month, and eight days.

Autopsy forty-eight hours after death.† Body very much emaciated, no cadaveric rigidity. Eight incisor teeth, anterior fontanelle very large.

Measurements.	Right Leg.	Left Leg.
From anterior superior process of ilium to middle of patella	7 inches.	$6\frac{3}{4}$ inches.
From middle of patella to internal malleolus	6 "	$5\frac{5}{8}$ "
From middle of patella to external malleolus of right leg	$6\frac{1}{2}$ "	
Circumferences.		
Middle of thigh	7 "	$5\frac{3}{4}$ "
Buttocks	$12\frac{1}{2}$ "	$7\frac{3}{4}$ "
Knee	8 "	6 "
Calf	8 "	$4\frac{1}{2}$ "
Malleoli	$5\frac{7}{8}$ "	4 "
Tarsus	$4\frac{7}{8}$ "	4 "
Length of foot	$3\frac{7}{8}$ "	4 "
Length of cadaver from occiput to the plantar surface of the heel	$31\frac{1}{4}$ "	30 "

The following cut (figure 5) is from a photograph of the dismembered limb, and exhibits the relative shrinkage of the hypertrophied parts. The covering integument of the buttock hung in large flabby folds, which could be raised and moved as if unattached to the subjacent tissues. Beneath were several empty caverns, varying in size, and lined by an irregular, jagged surface, seemingly made up of very small fat globules, thickly interspersed with minute cysts, mostly not larger than a pin's head.

Several times during the progress of the intestinal disease, and once previously, following what she considered a very copious diuresis, the mother called my attention to the apparent diminution of the rump and to the looseness of the skin, which led me to suspect the existence of lymph caverns. The sensation in several places was different from that of a solid mass,

* I suspected, from the repetition of this hæmorrhage, some abnormal condition or arrangement of the pelvic blood vessels, but none was discovered.

† Present, Drs. Drinkard, Lamb, Healey, and Kleinschmidt.

but at no time could I detect fluctuation or cause diminution by firm and continuous pressure.

The measurements last given were made from the limb as shown in figure 5.

Heart, lungs, liver, kidneys, and spleen healthy; stomach filled with a whitish gruel-like fluid; mesenteric glands enlarged; blood-vessels of mesentery engorged. Peyer's patches were enlarged; follicles distinct and prominent. In the large intestines, the glands were ulcerated, intestinal walls large and translucent.

On the right side, extending from the fourth lumbar vertebra (displacing the right kidney, pushing its convex outer surface up against the liver, into the under surface of which the kidney

FIG. 5.

FIG. 6.

has made a marked depression) was found an extra-peritoneal tumor, which filled two-thirds of the false and true pelvis. This

mass appeared like a number of the convolutions of the large intestine agglutinated together and in a gangrenous condition. It was firmly attached to the bodies of the lumbar vertebræ, fascia of right psoas muscle, along the crest of right ilium and right horizontal ramus of the pubis, to the fascia of the false and true pelvis and to the perineum. The cæcum was displaced to the left side, and the rectum pushed far to the left of the median line. Uterus and bladder normal, and in natural position. Right ovary lying upon the anterior surface of tumor, attached to it (but not fixed) by the broad ligament, between the layers of which the tumor seemed to be.

This tumor, as imperfectly shown in figure 6, consisted of five cysts, each containing a thick brownish-red fluid, composed of blood corpuscles, granular matter, and débris. Three of the cysts communicated through apertures in the intervening septa; the other two were completely closed. The communicating cysts were emptied of their contents and filled with quicksilver, and the non-communicating were treated in a similar manner, without discovering any connection with the adjacent parts. The blood-vessels in the neighborhood of these cysts were tied above and below and injected with quicksilver, but no communication could be discovered between the cysts and any of the vessels. Their walls and the intervening septa were composed of dense fibrous tissue, and the anterior surface of the mass was covered by the peritoneum. None of the cysts were separate and distinct, but so arranged that a portion of the membranous wall of each was common to two or more cysts. These cysts are believed to be devastated lymphatic glands.

The skin covering the hypertrophied parts was everywhere thickened. The subcutaneous connective tissue was vastly increased, contained but little fat, was wide meshed, with very many small cysts, some as large as a pea, filled with a serous fluid. Between the skin and superficial fascia, in several places, were smaller or larger cavities, containing clusters of small serous-like cysts, in every respect like those found in the meshes of the subcutaneous areolar tissue. One of these cavities, about the size of a filbert, was found in the locality of the cyst-like body on the inner aspect of the knee-joint; upon the fascia orming its base was a thick layer of dark pigment.

The muscles of the thigh and buttock were pale and flabby, and everywhere in the inter-muscular connective tissue, varying in size from a pin's head to a pea, were to be found the serous cysts. The muscles of the leg were of a deeper color and appeared normal. They were not atrophied. The arteries and nerves were natural. The veins on the outer and posterior aspects were hypertrophied—the external saphena, before referred to as the dark-bluish wavy line on the outer side of the knee, was very large. From it a large branch ran to the large nævus about the cluster of vesicles, and there sub-divided into a number of minute branches. The posterior tibial was as large as a goose-quill, and, in the immediate vicinity of the nævus at the ankle-joint, divided into a number of smaller branches. From it extended a branch as large as a crow's quill along the dorsum of the foot, sending large branches to the third and fourth toes, which were discolored.

The vesicles contained a serous-like fluid. From one the pouch-like covering was removed, and in the base two small openings could be seen with the naked eye, through which a lymph-like fluid could be pressed. One of the vesicles was incised, and into it a small funnel was inserted and secured, into which quicksilver was poured. All of the vesicles, with a single exception, quickly filled with the metal, and a number of the cicatricial spots developed into vesicles filled with the metal. From the same reservoir of metal the lymphatic vessels were injected; one dipping down between the muscles terminated in a dilated pouch-like sinus, another followed the course of the posterior tibial vein, sending off numerous branches along its course; and a third, probably the same trunk, ran upwards, but could not be traced far above the knee in consequence of the previous dissection of the parts above. No communication between the superficial and deep-seated lymphatics could be anywhere discovered—none of the latter being injected with the metal.

After the most careful examination we failed to discover either the receptaculum chyli or the left thoracic duct.* Por-

* This dissection was made under unfavorable circumstances. The portion of the body represented in figures 5 and 6 was removed and examined after several days' immersion in alcohol.

tions of the subclavian and jugular veins were removed and carefully examined subsequently, but no vascular connection could be recognized as the left thoracic duct. The right duct emptied into the right subclavian vein.

Beneath the nipple-shaped bodies, in the superficial fascia, was found a spongy vascular tissue which extended into the bodies, seeming to compose the entire mass, except the covering integument. The bluish-colored puncta, before described, were the terminal dilated ends of venous radicles.

Fig. 7.

Figure 7 represents a vertical section of one of these bodies. Microscopic examination by Dr. McConnel. It shows a central sinus, which in the recent state contained blood, clots of which may be seen represented upon different parts of the wall. Surrounding this is well formed connective tissue, exhibiting no evidence of any inflammatory process; other views of the same section exhibited here and there small clots of blood completely walled in. Mucous tissue was also to be seen. The sub-papillary layer of the skin was exceedingly vascular, and the sweat glands were enormously hypertrophied.

Figure 8 represents a microscopic section (vertical) of the

integument covering one of the vesicles. These vesicles were simply pouches of skin containing lymph, their walls consisting of nothing (McConnel) but the components of the skin, with here and there newly-formed connective tissue which encroached upon the cavity.

The tibia was very slightly, if any, enlarged. The articulating surfaces were normal.

The discrepancy in the measurements of the foot are due to the fact that in one instance the measurement is made from the posterior surface of the fat cushion on the plantar surface (see figure 3), and in the other instance from the posterior surface of the heel proper.

Fig. 8.

I have failed to find any record of a case precisely similar, in all of its features, to this anomalous one; but a number of cases have been published, both congenital and acquired, presenting one or more of its phenomena. By applying the information to be derived from an examination of the reported cases, a satisfactory explanation of all the abnormal conditions may be reached. This method of study will involve the grouping together of the cases illustrating particular phenomena, and

though the special inquiry relates to congenital conditions, it will be necessary occasionally to amplify the illustration, to introduce into the group instances of the acquired forms.

The feature which first attracts attention is the extraordinary enlargement, and the singular preservation, in such a marked manner, of the natural flexures of the skin and subcutaneous adipose tissue. The natural furrows and indentations of the covering integument are usually exaggerated in similar hypertrophic developments; but this peculiar arrangement of the enlargement only finds its analogy in the case, reported* by Thomas Chevalier, of "extraordinary enlargement of the right lower extremity," following an attack of phlegmasia alba dolens.

ART. II.—*New Intra-uterine Pessary, with Novel Method of Securing it in Position.* By V. H. TALIAFERRO, M. D., Atlanta, Ga., Professor of Obstetrics and Diseases of Women in the Atlanta Medical College; President of the Atlanta Academy of Medicine; Secretary of the Board of Health of the State of Georgia.

The objectionable features of the intra-uterine pessaries are their tendency to excite inflammatory action in the uterine and peri-uterine structures, and the difficulty in retaining them in position. With these overcome, the intra-uterine stem is an instrument of great value, and applicable to a variety of conditions not amenable to other resources, as so often found in flexions, superinvolution, amenorrhœa, sterility, etc.

The rather bulky instruments of Simpson, Kiwisch, and Valliex, adopted with great enthusiasm by their illustrious authors, yielded such unfavorable results as to bring them into much disfavor, and to well nigh cause, for the time being, their entire abandonment.

Of late years instruments of a more approved construction, together, doubtless, with our greater aptitude at diagnosis, and our better understanding of the contraïndications to their use, have contributed, no doubt, to their present popularity with many gynæcologists.

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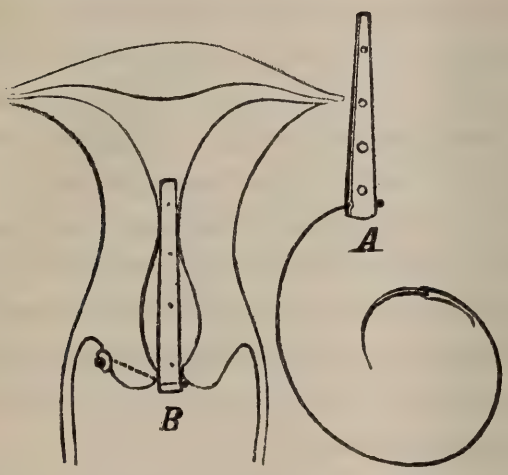
* Med. Chir. Trans. Lon., vol. ii., p. 63, 1817.

The special points to be observed in the use of the intra-uterine stem are: 1. A fit sufficiently loose to make no undue pressure at any point, and which at the same time is sufficiently close and secure in position to prevent any free motion of the instrument. 2. It should be perfectly secured in its position in the cervix, so that no slipping up and down is allowable. 3. It should cause no pain or uneasiness, either in its introduction or its continued use. 4. The point of the instrument, when introduced, should extend but little beyond the internal os. 5. The uterus should be free from any marked tenderness or congestion. 6. The peri-uterine structures should be soft and elastic, and free from tenderness. 7. The instrument should be light and simple in construction, flat in shape, and preferably of zinc and copper, or copper alone.

One of the chief difficulties in the use of the intra-uterine stem is to retain it in the uterus. When the uterine canal has its normal axis, any of the ordinary stems with vaginal bulb are readily retained, as the instrument abuts upon the posterior vaginal wall. If, however, as so frequently occurs in displacements, the uterine axis is brought more nearly in coïncidence with that of the vagina, then the support of the posterior vaginal wall is gone, and the instrument slips from the uterus into the vagina. Various devices have been resorted to for the purpose of meeting this trouble, all of which I think more or less objectionable. Those with expanding arms, whether of metal or rubber, are most reprehensible.

Sir J. Y. Simpson used the lever pessary for the purpose of directing the os back upon the posterior wall, upon which the instrument would rest. Prof. Thomas, of New York, uses the lever with a rubber diaphragm as a support for the stem. These, while far preferable to all the means heretofore proposed for retaining the stem in position, are yet objectionable in many cases where it is not desirable to subject the uterus to the double stimulation of a vaginal and intra-uterine pessary. They are again open to the objection that the stem is not *fixed* in its position, and hence capable of a constant upward and downward play, from the almost incessant physiological movements of the uterus.

In the simple stem here offered, with the method of securing it, I have endeavored to meet the indications and difficulties mentioned.



The stem, as represented in the wood-cut, with silver wire and needle attached, is made of strips of sheet zinc and copper, such as is obtained from the tin-shops, trimmed with stout scissors to any size desired, and the separate strips riveted together. They can be made in any doctor's shop in a little while. The stem is flattened antero-posteriorly, and adapts itself perfectly to the uterine canal without change of the normal relation (antero-posterior approximation) of the walls of the uterus.

The instrument is slightly galvanic, and hence therapeutic as well as mechanical in its action. As will be observed by the wood-cut, its proximal end has secured to it a delicate silver wire, with small curved needle attached. The wire is fixed to the stem by passing it between the zinc and copper plates, and secured with a compressed shot.

To apply the pessary, the patient is placed before a good light, in the semi-prone position, and the uterus exposed with Sims' speculum. The anterior lip of the os is then seized with a tenaculum, and the uterus straightened out in the vaginal axis and steadied, while, with suitable needle forceps, the needle—already attached by delicate silver wire to the stem—is made to pass immediately within the os and out laterally through the cervix, emerging just below the vaginal junction. The point of the needle is then grasped with the forceps and withdrawn. The stem is introduced in the cervix, while the wire is being at the same time withdrawn, until both are in position. A small lead button is slipped down the wire, and on this a perforated shot, which is compressed and the wire cut close.

A very correct idea of the operation is conveyed by the wood-cut, with the stem seen secured in position. The stem, as will be seen, is firmly and securely fixed in the cervix, and partakes of every movement of the uterus, and hence incapable of the independent movements and friction of the ordinary *bulb stem*, such as now generally used.

When the galvanic stem is not particularly desired, the instrument may be made entirely of copper; one plate instead of two being used, thus making it just half the bulk and weight.

The instrument may be worn for an indefinite time without risk of damage or inconvenience to the patient. While using them I direct that, after a few days from the introduction, no check be put upon exercise, either on foot or horseback. The same precautions as to dress are applicable here as in the use of vaginal pessaries, that the uterus may not be forced upon the floor of the pelvis by the pressure of tight clothes or corsets, and subjected to friction and concussions. The vaginal douche, of hot water, should be daily used while the pessary is worn.

CLINICAL RECORDS.

"Ex principiis, nascitur probabilitas: ex factis, vero veritas."

Artificial Anus from Traumatic Cause; Recovery. By N. J. Rains, M. D., Rosine, Ky.

Allow me to report a case, which I trust will prove sufficiently interesting to be worthy a place in the columns of your most excellent Journal.

I was called on Wednesday evening, January 24, 1877, to see Mr. R., aged thirty-five years. He has always enjoyed excellent health. Fifteen minutes previous to sending for me, he was engaged in a fray, and had received three wounds on arm and back with a small knife, two of which not being of sufficient magnitude to be interesting to the readers of a medical journal, I will therefore speak only of one, which is a "transverse penetrating incision," two and one-half inches in length in the

abdomen, in the median line midway between the umbilicus and symphysis pubis. On reaching the patient, I found a knot of intestine (jejunum) the size of a man's two fists protruding. Examining it, I found a transverse incision one and one-fourth inch in length, three inches superior to first; another incision one-fourth of an inch in length, and through both of which half-digested material was freely passing. The edges of the wounds in the intestine were brought together with five interrupted sutures (Glover's would have been better) in the larger and two in the smaller. After cleansing the intestine of all the escaped ingesta, etc., it was returned, and the edges of the abdominal wound were brought together with the proper number of interrupted sutures and adhesive plaster; applied an abdominal bandage to give rest to the abdominal muscles; had him washed, redressed, and put to bed. Absolute rest in the recumbent posture, dorsal decubitus, was strictly enjoined. I had previously given a large dose of morphine for the purpose of alleviating suffering and arresting all peristaltic action of the bowels. After seeing him under the influence of the morphine, I left him, giving instructions, however, to repeat the morphine every four hours until I should return the following morning.

January 25, *Morning.*—I found the patient very drowsy from the effects of the morphine; very little abdominal tenderness; pulse 110 per minute and full; skin moist; kidneys acting well; no food was allowed except the very blandest and in liquid form; wounds on arm and chest healing by first intention. The same treatment was continued.

January 26, *Morning.*—Patient restless; slept but little during the night, although he has taken one-half grain morphine every four hours; pulse 120; abdomen tympanitic and tender on pressure; skin dry; tongue coated. The same treatment was continued with the addition of warm fomentations to the abdomen and morphine increased to every two hours.

January 27, *Morning.*—Still very restless; abdomen very tender on pressure; pulse 130 per minute; skin hot and dry; tongue coated; wounds look red and angry; great fears that general peritonitis will supervene. At the suggestion of Dr. Pendleton a vein was opened, and about sixteen ounces of blood

extracted, which was thought would lower the pulse. But little effect was produced. Continued morphine and warm fomentations, with tinct. ver. vir. every four hours until the pulse was affected. Two doses were given, when the pulse fell to 110 per minute. The skin became a little moist.

January 28, *Morning.*—The patient is resting easy; had slept well during the night; skin moist; pulse 110 per minute; abdomen not so tympanitic and tender; wounds doing well. His condition was about the same for the next four days, during which time morphine was kept up, warm fomentations, ver. vir. as was indicated, with dorsal decubitus and light fluid diet.

February 1*st*—*Morning.*—Patient has not yet had an action on bowels since receiving wounds, now eight days; abdominal wound almost healed; abdomen very tympanitic, though not tender on pressure; vermicular action of bowels very great, which morphine in grain doses failed to arrest. Pulse 110 per minute; skin moist; auscultation revealed a cardiac sound not unlike that produced by the dropping of water in a tight barrel partly filled with water. Patient complained of a seeming constriction of the chest, which was to him very distressing. This cardiac trouble was due to the very great distension of the stomach and bowels with gas, pressing up the diaphragm against the thoracic viscera.

February 1*st*—*Evening.*—Some inclination for first time to void fæces. Gave an enema of warm soap-suds, but it failed to induce an action; tympanitis and cardiac trouble now becoming very distressing. Examined the abdomen, and found it disposed to gape. Soon patient discovered that gas was escaping through the abdominal wound. On removing the dressing, found wound gaping, through which gas and fæcal matter was freely passing. It was now apparent that adhesion had taken place between the intestines and peritoneum and abdominal parietes, and that I had now to deal with an artificial anus. The tympanitis and cardiac trouble was soon relieved by the escape of the gas and fæcal matter through the artificial abdominal opening. After taking nourishment, half-digested material would pass out through the opening; water drank would also soon find its way out through the artificial opening.

February 2d—Morning.—Patient resting well; pulse normal; skin acting well; tongue moist; half-digested material passing out at abdominal opening after eating; bile and intestinal secretions escaping continually through in small quantities. Gave another large clyster, and this time patient voided, with a great deal of pain, four or five very hard scybalæ, followed by a pretty free discharge of fæcal matter of the proper consistency, after which patient felt much relieved.

February 3d—Morning—Patient doing well; has had another copious discharge per anum proper. The escape through the abdominal opening grew less after bowels had acted freely. I could now look down into the intestine and see its contents passing by the opening, taking the natural course, though a small quantity would pass out through the abdominal opening. The flow was not in a continuous stream, but would flow in waves, as it were, corresponding to the vermicular action of the bowels, which was fifteen per minute. All medical treatment was now discontinued. A compress was applied over the abdominal opening and held in situ by an abdominal umbilical strap, which prevented the further escape of the contents of the intestine, and also a knuckle of the intestine from protruding.

March 1st.—Abdominal wound nearly healed; very small portions of contents of bowel now escape, even with all dressings removed; has one free action on bowels per day; appetite good; all secretions normal.

April 1st.—Wound healed, except a very small opening, which, however, does not allow any escape when all dressings are removed.

May 1st.—Abdominal wound entirely healed and patient enjoying his former good health. At the time of writing he is in excellent health and clerking in a dry-goods store. Bowels very regular.

PROCEEDINGS OF SOCIETIES.

"Etsi non prosunt singula, juncta juvant."

Proceedings of the American Medical Association.

The twenty-eighth annual meeting was held in Chicago on June 5, 6, 7 and 8. The Association assembled in Farwell Hall. Called to order by Dr. J. M. Sims, retiring President. He thanked the Association for honors conferred, and introduced Dr. H. L. Bowditch, of Boston, who with appropriate remarks took the Chair. Prayer by the Rev. W. L. Harris. Dr. N. S. Davis, of Chicago, delivered the address of welcome. He stated that there was only one (D. W. L. Atlee) present of the seventy-six voters who, thirty-two years ago, organized the Association at New York. Most of the others were dead. Of the twenty-eight Presidents sixteen were dead. The advantages of the city of Chicago were carefully detailed. List of Delegates present was read. Dr. Bowditch then delivered his address. It was very practical in character. He advocated the strict observance of temperance at the meetings, and that these should be much more frequent. He thought the number of delegates allowed by each society too large. As a general rule much more was expected of the Association than under present circumstances it could perform. It could necessarily accomplish very little scientific work; that the Transactions were too bulky and expensive, containing much that could be omitted. He was hopeful in regard to section work; but deplored the brief criticism usually made upon papers read. He thought such papers should not be published unless approved by a committee of experts, and never unless they contained some new fact or new arrangement of facts. He commended the inviting of women to meet with the Association; thought there should be close affiliation with the Canada Association, and if possible a union formed, proposing that the matter be referred to the Judicial Council. Called the attention of the Body to the necessity of revising the Pharmacopœia; he did not, however, commit himself in favor of any of the plans suggested. State Boards of Health he considered very necessary, and recommended general

support in behalf of the museum and library of the Surgeon-General. He said that if nothing unless excellent was published in the Transactions, each volume would be a noble work (if they existed at all), and that the Association would eventually receive the highest respect of the Profession; unquestionably very feeble eulogy. He said that the Association "had enjoyed a perpetual youth, stalwart manhood," and he hoped it would live to a genial old age;" a statement and hope more generous than consistent or lucid. The period of the first childhood of the Association was not mentioned. The address was in the main practical and useful, and calculated to accomplish much good if many of the recommendations are accepted. The thanks of the Association were deservedly voted, and the address referred to the Committee on Publication. A committee was also appointed to report upon the recommendations made in the address. The committee was as follows: Drs. W. B. Brodie, S. D. Gross, E. Grissom, J. R. Smith, J. K. Bartlett, J. P. White, and J. M. Toner. The titles of papers were read, and the papers referred to the appropriate sections. On the second day the Association met at 9:30 o'clock. The minutes were read and approved. Delegates selected representatives for the Nominating Committee. Several volunteer papers were referred to the sections. A number of permanent members were then elected. A report on the President's address was made. This was unfavorable. The plan of submitting papers to experts was disapproved; committees to procure papers on scientific subjects regarded as unnecessary; change in the ratio of representation deemed unadvisable; union of the Association with the Canada Association impracticable; the question of the revision of the Pharmacopœia inexpedient at this time. On motion of Dr. Bowditch, the report was laid on the table. Dr. E. R. Squibb, of New York, then spoke on the revision of the Pharmacopœia. He said that it was impracticable to read his report, which was a long one, because one hour only had been allowed for the purpose. He, however, read a full analysis of the arguments offered.

Dr. P. G. Robinson, of Missouri, read his address on the Practice of Medicine; in this he examined more particularly

the following subjects: Sewerage as a centre of contagion; the etiology of specific fevers, chiefly the typhoid, citing several instances of the transmission of the disease through the medium of milk. He discussed also the good effect of salicylic acid and salicine in rheumatism, commending this treatment; the value of counting the blood corpuscles in certain affections; gelsemium in the treatment of neuralgia, etc. He enumerated the names of most of those who have written in regard to the localization of function in the brain. A good address.

Dr. James P. White, of Buffalo, then delivered the address on Obstetrics. He regarded the formation of the American Gynæcological Society as the most important event of the past year, commending its transactions and publications. He enumerated by title most of the books and pamphlets on obstetrics that had been published during the past year. He made special mention of the papers of Drs. J. S. Parry, I. E. Taylor, of New York, Maxon, of Syracuse, New York, and Campbell, of Georgia. He noticed with pleasure the increased popularity of the obstetric forceps, and exhibited a pair devised by himself. The Committee on Nominations was then announced.

On the third day numbers of gentlemen were elected as members by invitation and a few as permanent members. Treasurer's report was then read. The prize essay had been published at a cost of $6,000. The balance in treasury $172.00. Report of the Committee on Publication was read; they apologized for the delay in the appearance of the last volume; this being caused by the bad condition of the reports, and these were bad, as they had been prepared by unprofessional reporters. The employment of a professional reporter was strenuously urged. No essays recommended for the prize. Librarian's report showed the possession of 2,000 volumes; the library in good condition, with material increase during the last year. Dr. E. M. Hunt, of New Jersey, then read his address on State Medicine. This was a very good paper, reviewing very much that had been done in the past, analyzing the present status of State Medicine and advising many improvements. Dr. E. R. Squibb, of New York, and Dr. H. C. Wood, of Philadelphia, then spoke at length on the subject of

the Pharmacopœia, whereupon the subject was tabled and postponed indefinitely. The report of the Nominating Committee was then made: Dr. T. G. Richardson, of New Orleans, President; Drs. J. P. White, of Buffalo, M. Gunn, of Chicago, G. W. Russell, of Connecticut, and A. Dunlap, of Ohio, Vice Presidents. The names of the chairmen of the various sections, with the secretaries of these, were also announced. Buffalo was selected as the place of the next meeting. More members by invitation and more permanent members elected. The report of the Permanent Secretary on State Boards of Health, also a report on Medical Observation and Record by Drs. Edward Seguin and J. J. Woodward of U. S. Army were read. Section reports were read and referred to the Committee on Publication. A supplementary report was read in regard to nominations. The Committee on Prize Essays is as follows: Drs. E. M. Moore, T. Lothrop, W. Miner, H. R. Hopkins, and E. W. Dean, all of Buffalo, New York. The resolutions in regard to repealing the tariff on quinine were adopted. These were offered by Dr. J. W. Singleton, of Paducah, Ky., who also offered other resolutions expressive of the satisfaction of the Profession in regard to the unceasing amity between the different sections of this country, all of which were unanimously adopted.

Dr. Edward Seguin, of New York, was made a delegate to the International Convention to be held at Geneva, and Dr. L. A. Sayre to the British Medical Association. Thanks were very justly tendered to Dr. F. G. Smith, of Philadelphia, for his efficient transaction of the onerous duties of chairman of the Committee of Publication for many years. Similar thanks were extended to Dr. Caspar Wistar on retiring as Treasurer. Provision was made for the creation of a Section on Ophthalmology and Otology. Dr. Bowditch resigned his chair, and spoke in favor of the recommendations made in his address. This elicited much discussion, and the whole matter was referred to a committee, to report at the next meeting.

Dr. J. J. Woodward offered the following excellent resolution, which was adopted, viz:

Resolved, That from this meeting and hereafter, the practice of printing in

the Transactions of the Association the so-called verbatim reports of the debates in the sections be discontinued, and that the reports of the sections be limited to the papers presented and recommended by the sections for publication, and such minutes as may be actually read before the section.

This will eliminate from the volume of the Transactions a vast deal of trash.

The Buffalo doctors sent thanks for the selection of their city as the place for the next meeting, and promised hospitality. Thanks were then offered to the people of Chicago, to the Committee of Arrangements, etc. Dr. Bowditch then delivered his retiring address, at the close of which he called Dr. T. G. Richardson, of New Orleans, to the stand, and, taking him by the hand, said: "Last year South Carolina extended the right hand of fellowship to Massachusetts, and this year Massachusetts extends her hand to Louisiana. God bless the Union, and let all the people say Amen." This hand-shaking was greeted with great applause; many envious couples, inspired with the enthusiasm of the moment, got up similarly affecting scenes in various parts of the hall. Nervous men drew spotless handkerchiefs from their pockets and very pathetically spotted them; nervous women became prone to hysterics, and the tableau was regarded by all artistic natures present appropriately dramatic and profoundly touching.

Dr. Richardson, controlling his feelings with commendable success, made a very appropriate response, and praised God that there was again an unbroken national family of States. He thanked the Association for the honor it had conferred upon him, and amidst all this geniality and sunshine the Association adjourned to meet in Buffalo on the first Tuesday in June, 1878.

NOTE.—Not being present at the meeting, these facts have been obtained from the best sources, and are herewith submitted. E. S. G.

ORIGINAL CORRESPONDENCE.

"Sit mihi Fas scribere audita."

ALEXIS, ILL., April 30, 1877.

Dr. E. S. Gaillard:

Dear Sir,—My object in writing this letter is to bring before your readers a question which, to me, proves very perplexing, and yet doubtless of vital importance. We have, as your readers are aware, a large class of cases coming almost constantly before the general practitioner, and especially the country physician, in which we are greatly at a loss, both in diagnosis and treatment. Of course, if the case is not correctly diagnosed it can not be judiciously treated. True, from the vast vocabulary of names we generally find one with which we attempt to satisfy our patient. In the condition referred to our hobby is dyspepsia, or more properly speaking impairment of the digestive functions, the latter usually fitting merely from its comprehensiveness and the great length of the alimentary canal. Even with these names we do not always succeed in satisfying our patient, and seldom our own minds, in regard to the true pathological condition. After years of experience in the treatment of these cases we can not see that we have advanced one step, in so far as the differential diagnosis between functional and organic diseases of the digestive organs is concerned. Now, we do not propose to ignore or set at naught the valuable authority upon this subject, especially Chambers and others of undoubted merit, yet we confess to have failed either by reading or practical observation of finding any solution to these various and multifarious symptoms, coming up almost daily in the physician's routine of practice. Now what we desire in this is to elicit, if possible, from some of the many readers of the Journal more light on this, to us, most intricate and otherwise annoying morbid condition, and we would add of more frequent occurrence, especially in this section of the West, than any other disease; in fact, in my experience during the past ten or fifteen years no one class of cases have more frequently presented themselves for treatment or received more of

my time and serious consideration than the above. Yet to-day diseases of the digestive and assimilative organs, to me, are wrapped in as much obscurity and as difficult of diagnosis and treatment as ever.

I must confess that whatever the treatment of my medical brethren may have been in this, mine has in the main been empirical. If entitled to any credit in the treatment of these cases, it would only be that of a careful watchfulness for new remedies, with the hope of finding something which would act upon the broadcast tonic principle and seek out and cure what pathology and treatment had failed to do.

Not desiring to unnecessarily prolong this letter, we will submit a brief synopsis of what we consider to have been the general treatment in these cases, running back through the past of our professional life, and commencing with the old style tonic bitters of twenty years or more ago; these containing usually Peruvian bark, colombo and gentian roots, with perhaps a little rheubarb, as the case might be, and invariably in a menstruum of spiritus frumenti. Well do we remember how often these large bottles would be returned drained to the dregs, with the request for a fresh supply, especially of the menstruum; but as time passed on and medical science made its onward progress, these old formulas were buried with our patients. In their stead came the various preparations of pepsin, and their name was legion. After these a flood of fluid extracts filled the shops, many of which thoroughly established their claim to especial merit, and still hold prominent places in our materia medica, and nearly all possess one redeeming quality, concentration and more minute doses. But we must not neglect to mention here nux vomica and its alkaloid strychnia, both of which have passed through this whole period, and perhaps have been used with as much success as any of the above-named remedies. Last but not least is cundurango, a remedy of more recent origin, which has come to us, we may say, accidently, as we first observed its effects upon the digestive organs in the testing of its virtues in the treatment of cancer by Professor Andrews, of Chicago, and others. We confess to have eagerly seized upon this remedy about three years ago, after having

observed its marked beneficial effects upon the digestive organs in the above-named trials, and after three years' trial with it we still insist that it alone or in connection with strychnia has done more in our hands to tone up impaired digestive organs than all other remedies combined.

Respectfully, J. P. McClanahan, M. D.

Georgetown, Tenn., 1877.

Prof. E. S. Gaillard:

Dear Sir,—I report a remarkable case of lightning stroke, which will, perhaps, be interesting to the readers of your Journal. The patient, W. L., was a young man, aged twenty-three. He was struck while sitting before the fire. When I first saw him he was totally insensible, but very restless, tossing and resisting all efforts to undress him. His surface and extremities were cold; his pulse very small and feeble. There was a superficial nearly vertical wound of the right scalp, looking as though made with a sharp point of some kind, and a chain of irregular large vesicated spots extended down the right ear over the neck and chest down the abdomen to the penis. There were also similar spots and an abrasion on right thigh. His hat was very much torn and burnt, and pantaloons burnt corresponding with thigh wound; his shirt was somewhat torn in front. He was wrapt up and put to bed, and allowed to take some whiskey, which he swallowed without any difficulty. In the afternoon next day slight vomiting occurred, and his pulse grew stronger; during the evening and much of the night he was very restless and muttering incoherently, having occasionally involuntary passages, which were hard. The next day his condition was very much the same, though his pulse was somewhat fuller; surface warmer; a little fluid trickled from the right ear. A weak milk punch was given him, which was swallowed as before. In the afternoon he opened his eyes and looked around intelligently, but did not speak so as to be understood. In a few minutes he became unconscious again, and at 7 P. M. pulse 72, respiration 30, and temperature lower. He died at 3 A. M. No post-mortem allowed, therefore nothing else could be discovered. Respectfully yours,

R. A. Wilson, M. D.

BALLARDSVILLE, February, 1877.

Prof. E. S. Gaillard:

Dear Sir,—In a late number of your Monthly for this year I saw an article on "Quinine in Uterine Conception," and wish to add a little testimony in support of Dr. Witherly's position. For a period of thirty years I have been meeting cases of fever and ague and intermittent diseases of all characters to a very considerable extent for each year, and have never hesitated to administer quinine not only in every variety of orthodox doses, but as high as thirty-six grains at a time. Many of these patients were females at every stage of parturient progress, and in no case has abortion or premature labor resulted after the use of quinine in my practice. Somewhere about twenty years ago I saw in some medical journal the statement that we could anticipate and arrest an abortion with quinine in the same way and same certainty that we can a chill. Shortly after this a patient was placed under my care who had just aborted at four months. I learned (while attending upon this patient) this was her third miscarriage; each occurred at four months, and that she had never carried a conception to the full term. It occurred to me that here was a case for the trial of quinine; I consequently requested her that in the event she should again find herself in this interesting condition, to inform me somewhere between the third and fourth months, and I could probably induce her to carry it to the full term. In due course of time the fortunate event occurred, and I was duly notified. I commenced, as we supposed, about a week in advance of the usual four months, and gave her regularly each day twenty grains quinine in half-grain doses every three hours until the fatal day was passed. The result was that at the full term of gestation she presented her husband with a fine specimen of humanity, and is now the mother of several children, and has not since aborted. I have since that given quinine in two other similar cases to prevent abortion, and the patients did not miscarry. Although these few cases do not prove that quinine will prevent abortion, they evidently show it will not produce it.

Respectfully yours,

JOHN SWAIN, M. D.

BARTLETT, TENN., May 30, 1877.

Dr. E. S. Gaillard:

Dear Sir,—After reading Dr. Sayre's paper in the May number of your Journal, on the treatment of Pott's disease by the plaster of Paris jacket, I determined to adopt it in the treatment of two cases now under my care. Accordingly on yesterday, with the assistance of my friends, Drs. A. W. Cole and R. P. Means, the jacket was applied as directed by Dr. Sayre, to a colored woman aged forty, who had been suffering two years from the disease, located in the eighth and ninth dorsal vertebræ. I shall not give a detailed history of the case at present. We found no difficulty whatever in "turtle-shelling" the patient. We followed Dr. Sayre's directions implicitly, and succeeded to our entire satisfaction. After the jacket had set, the expressions of relief from the patient were as immediate and positive as in the most striking cases related by Dr. Sayre. I saw the patient again to-day, twenty-four hours after the jacket was applied; she was in a most comfortable condition, making no complaint, except that it "felt funny." This woman has been in bed most of her time for six months, and it was with the greatest pain that she was helped to the erect position, and she could then take only a few steps, supporting herself with her hands upon her knees, or by holding to the bed or a chair. To-day she walks erect with an elastic tread. She sits up by preference, and has used the sewing machine. My only object in writing now is to bear testimony to the truth of Dr. Sayre's statement: "That any one can treat the disease as well as himself, with equally good results, if he will only follow the instructions given."

If physicians who shall read this note are thereby induced to attempt this plan of treatment, I shall feel that I have in a small way assisted Dr. Sayre in his great benefaction.

We had misgivings about the result of our effort, but I am now prepared to affirm that any physician of ordinary mechanical skill can apply the jacket successfully; and I will add further, that he can, as I did, manufacture with his own hands all the appliances necessary for suspending the patient.

Very truly yours, JOHN F. COCHRAN, M. D.

NORWOOD, ILL., 1877.

Dr. E. S. Gaillard:

Dear Sir,—I see that the condom has lately been perverted from its original mean purpose, and applied to the testicle instead of penis; but I do not see that any one has ventured to apply it in any way to the other end of man. During the fall of 1872 I had a number of intractable cases of epistaxis, dependent upon blood dyscrasia. Plugging was in demand, and after using the sponge first by spring catheter, I found the tent better, but finally, in one case, found even that mode inefficient, the blood flowing freely on removal of the tent on the third day, and the irritation so great as to render their further use impracticable. I immediately ordered a No. 1 gum catheter and a condom, and introduced the catheter into the condom; carried both to the posterior nares, withdrew the catheter slightly, tied a string close to the anterior opening, and with a Davis syringe injected cold water until the cavity was filled. Nothing ever worked more beautifully for me, enabling me to keep it plugged or apply the cold by times, as I wished. You will note this ante-dates the Parisian rubber bag, and has the moral of diverting the condom further from the penis and from preventing to saving life. I want no other appliance for plugging, and have applied it to the uterus also.

Yours truly, J. F. MCCUTCHEN, M. D.

CHEMISTRY AND PHARMACY.

"Diruit, ædificat, mutat."—HOR.

Dialyzed Iron.—Dubrunfaut, Graham, and others, showed that by floating upon distilled water a vessel closed at its lower part by a membrane, and containing an intimate mixture of various substances, these will soon divide themselves into two distinct parts. The ones called crystalloids pass through the membrane, as do also most of the crystallizable substances, and mix with the distilled water. The others, which received the

name of colloids, and of which albumen may be considered as a type, remain wholly in the apparatus. This dialysis, or separation, takes place with such nicety, and such precision, that this method has been employed in medico-legal investigations to isolate poisons which chemical processes would have destroyed or left in the mixtures which were to be analyzed. If certain salts of iron in solution are introduced into the dialyzing apparatus, and the latter is floated upon distilled water, most of the acid is soon found to pass through the membrane and into the distilled water. There remains in the apparatus mainly a solution of a peroxide of iron better freed of its acid than any chemical reäction could do.

When properly made, the solubility of dialyzed iron in distilled water is very remarkable, and this degree of solubility is unaffected by nitric, acetic, or muriatic acids, but traces even of organic matter, sulphuric acid, alkalies, some salts, and boiling cause a coägulum to form, resembling a blood-clot, which is insoluble in water, but soluble in dilute acids. Neither alcohol nor sugar effects a change in the form of the solution, and their use renders it possible to prepare elegant alcoholic solutions and a syrup. Most valuable features of iron prepared by this method are the absence of any styptic taste, and the freedom from tendency to produce disturbances of digestion or of the nervous system, it is moreover almost tasteless, and is free from tendency to blacken the teeth, qualities not possessed by most ferruginous preparations. A very valuable use to which it may be put is as an antidote to arsenic, for which purpose it is recommended to replace the hydrated sesquioxide, on account of its convenience of administration, and the fact that it requires no previous preparation. We have recently had sent to us two preparations of dialyzed iron—one by Lebaigue, of Paris, for whom Messrs. E. Fougera & Co., of North William street in this city, are the General Agents for the United States, and the other from the well-known house John Wyeth and Bro., of Philadelphia. The former is a beautiful reddish brown solution, containing about seven and three-fourth grains of the dialyzed oxide to each teaspoonful of the solution, the dose being one to four teaspoonsful with each meal. An elixir of

dialyzed iron is also made by the same house, which is an agreeable preparation. What we have said of the above will apply in every sense to the preparation offered by John Wyeth & Brother, with the difference that, being more concentrated, the dose is smaller, and the price is also (so we understand) somewhat less. Accompanying the bottle containing the latter solution is a fresh cork to replace the one injured by opening it, and a medicine-dropper (rubber-capped pipette) for measuring the dose. Thirty to fifty drops are recommended to be taken daily, in five doses.—*New Remedies.*

Mummy-Asphalt.—It was scarcely to be expected that the concession to an English firm of exporting mummy bones from Egypt should have brought anything into the drug market; nevertheless, during March of this year, a quantity of mummy-asphalt has been offered for sale and purchased by private contract in London, for use, it is believed, as a brown pigment. "*To what base uses may we come at last!*"—*Pharm. J. and T.*

Mineral Waters.—A special exhibition of French mineral waters will be held during the Universal Exposition in Paris, in 1878.

Printed Pills.—Frère, of Paris, manufactures pills with the name of the active principle and the dose legibly printed on each pill.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

"Judex damnatur cum nocens absolvitur."

A Review of the Latest Work of Dr. Max Von Pettenkofer—"An Outbreak of Cholera among Convicts." By ELY MCCLELLAN, M. D., Surgeon United States Army.

During the past twenty-five years, Von Pettenkofer has given to the scientific world an extended array of cholera works. Indeed, so frequently and dogmatically has he written upon this subject, that it would seem as if he considered it his own preëmption, and that it was his especial duty to rap at every head

which should appear above the cholera horizon. The nineteenth century is unqualifiedly the era of progress, and Von Pettenkofer is undoubtedly the most progressive of cholera philosophers. In 1854 he adopted, in the most enthusiastic manner, the theory advanced by Von Gietl as to the diarrhœal conveyance of cholera, but he soon found that it was too evident a proposition, and he therefore abandoned it for the more elaborate "ground-water" and local origin hypotheses, upon which he erects a most perplexing structure; which he surrounds by a confused glamour of numberless and unmeaning and unnecessarily tedious details. This he seems to consider scientific argument. The plain facts which are laid to his hand, which are before his eyes and under his nose, are overlooked. His personal experience in 1854, when he himself contracted the cholera by having his office in the Exposition building, situated just over the privies, is forgotten, and he has ever since puzzled his own brain and the brains of all his adherents by the wildest hypotheses that the mind of man ever conceived. The illustrious Parkes* expresses the difficulty of fathoming the profundity of his theorizing; he writes: "Pettenkofer's view is rather difficult to understand;" and it is no wonder that he was so impressed, for at the last cholera conference, upon the propositions of the transmissibility of the disease by man, Pettenkofer said: †"Je ne doute aucunement que le choléra ne se propage au moyen des mouvements de l'homme et des matiéres." But then, evidently fearing that for once he had made himself intelligible, he adds: "Il faut partir de ce principe, qu'une localité donnée est le foyer du cholera, d'ou l'homme propage le germe de la maladie. Cependant it est vrai que l'homme venant de la localité infecteé transmet ce germe; toutefois ce n'est pas sou corps proprement dit qui est directement l'agent de transmission; des expériences faites récemment en Allemayne, et particuliérement en Baviére á Munich, á Heilbronn et á Spire, n'ont pas permis d'etablir une corrélation entre la constatation des premiers symptomes du choléra dans ce lieu et l'arrivée des mal-

* Army Med. Dept. Report of the year 1873. London, 1875; p. 198.

† I have no doubt whatever that cholera is propagated by means of movements of men and things.

ades venant d'une localité infectée; c'est donc toujours la localité même qui est la véritable foyer du germe."* And yet in the face of this speech, he gave his assent to the following proposition of Dr. Hirsch: "Je ne conteste nullement la transmissibilité du cholera par l'hommie venant d'un milieu infecté; je considere l'homme senlement comme la cause spécifique en dehors de l'influence de la localité infecteé; en outre, je le considére comme le propagateur du choléra lorsqu'il vient d'un endroit où le germe de la maladie existe déjá."†

It is therefore scarcely to be wondered at that Dr. Parkes arrived at the conclusion "that Pettenkofer's views are rather difficult to understand," and "that they seem rather wanting in clearness of expression." Should we apply the scriptural rule of "by their fruits ye shall know them," the difficulty would be still greater; for having wandered aimlessly for some years he seems in danger of finally entrenching himself in Bengal,‡ and of adopting Cunningham's fifth proposition, "that cholera appears to be due to certain "conditions of air and soil, or of both combined, as yet little understood." But even in that Pettenkofer is not sincere. He intends to advocate no views which do not originate with himself, and any one who for the present may imagine that in the Munich Professor he has an ally is doomed to disappointment. Pettenkofer has of late years been so severe in denouncing all investigators who proceed by plans which differ from his own methods, and he has

* We must start with this principle, that a given locality is the focus of cholera, from which the germ of the disease is propagated by man. It is true, however, that man, coming from the infected locality, transmits this germ; still it is not his body, strictly speaking, which is the direct agent of transmission. Recent experiences in Germany and particularly in Bavaria, at Munich, Heilbronn, and Spires, do not establish a correlation between the recognition of the first symptoms of cholera in a place and the arrival of patients from an infected locality, so it is still the locality itself which is the true focus of the germ.

† I by no means deny the transmissibility of cholera by man coming from an infected place. I consider man alone as the specific cause outside of the influence of the infected locality; moreover I consider him the propagator of cholera when he comes from a place where the germ of the disease already exists.

‡ Practitioner, February and March, 1877.

so often asserted the superiority of his idea as to the manner in which such work ought to be carried on, that we are surely justified in the hope that the volume on cholera among convicts will at least make the investigation of all future cholera outbreaks a simple and pleasing task.

As an introduction to this volume, which purports to be "an etiological study of the influence of dwelling, food, drinking-water, occupation, age, state of health, and intercourse upon the course of cholera in a community living in precisely the same circumstances," the author proceeds to give an account of the cholera epidemic of 1873 in the city of Munich. Although the author modestly premises this description by the statement that it is "an account of some general facts relative to the epidemic," still from such pretentious hands we naturally expect to find at least an accurate outline of the earlier cases, and some description of the local conditions of the city; but at the very commencement our expectation is thwarted, for we are simply informed that "the first case in Munich is inscribed on June 25. The person affected was an American clergyman, who had arrived in Munich the day before from Vienna, being already ill, and the illness terminated fatally." We are told that this patient had been taken from the station to a hotel near at hand, and thence to the general hospital. The second case was that of a merchant from Darmstadt (date not given), who arrived likewise from Vienna, was taken from the station to a hotel, and thence to the general hospital.

No other cases occurred until July 21, when there were two cases, followed by two on the 22d, and by one on the 27th of the same month. These five cases had no connection with the first two. They occurred in an "exactly opposite" part of the town, and the only connection that could be traced with any foreign focus of infection, was that at the house of one of the cases a visitor from Vienna had remained for two hours a fortnight prior to the attack. But the Viennese was healthy, and did not use any water-closet in the house; and upon the authority of Dr. Friedrich it is asserted that there are no data for the assumption that "the first cases of the epidemic had any connection with cases of cholera or diarrhœa coming from

abroad." From this the author wanders into a dissertation as to the relative value of cholera infected individuals and cholera infected localities, illustrating his theory in his characteristic manner by an account of the outbreak of cholera which followed a gymnastic fête at Heilbronn, and having settled it to his satisfaction that no connection could be shown between the first cases and any other person living elsewhere, and that there could have been no connection between the five infected houses at Heilbronn, he proceeds to announce that a second epidemic occurred at Munich in the same year—a summer epidemic and a winter epidemic. The first epidemic lasted until the latter part of September, giving only a few sporadic cases in October and but two isolated cases in the first fourteen days of November, but on the 15th of November the second outbreak occurred, which lasted until the end of December, when it declined.

This statement is followed by an account of some cases of cholera which occurred in the prisons and lock-ups of Munich, from which prisoners were transferred to penal establishments.

Why the nine royal octavo pages, of which the foregoing is a synopsis, were written, it is difficult to imagine. What object had the author in view? He surely could not have supposed that such statements would pass unchallenged. Should we accept the statements as recorded in this introductory paper, they would be as follows: Two men sick with cholera arrived at Munich; they were first in the railway station, next at a hotel, then at the general hospital; no precautions were adopted to prevent the spread of the disease, and yet none took it. Pettenkofer certainly would have us believe that these two men were the only cholera-infected persons who reached Munich in 1873, although it is well known that Russia, Austria, Hungary, Turkey, Italy, Prussia, Saxony, Northwestern France, Belgium, and the Netherlands were infected with the disease; and that cholera was epidemic in Vienna early in May of that year, when a great crowd of strangers had been attracted to that city by the International Exposition. He would have it believed that at the city of Munich there existed none of the well-known and thoroughly understood *media* for the diffusion of infectious diseases, but that twenty-seven days after the

arrival of the American clergyman the disease developed from local causes in the very opposite portion of the town.

If, however, we are charitable enough to assume that Pettenkofer proposes to make no outline of the Munich epidemic of 1873, but has merely indicated certain facts, without leading to certain other suppositions, we are equally in the dark when we take up the subject with which he writes that he shall occupy himself; namely, the occurrence of cases of cholera in the prisons and lock-ups of Munich, from which prisoners were transferred to the penal establishments.

He proceeds to detail the cholera cases which occurred in six several prisons, and we are at a loss to comprehend what he intends to deduce from the elaborate tables which he has formed, unless it may be to prove that there really were two distinct epidemics, rather than one prolonged one; otherwise the tables are utterly without value, for that of the prison on the right of the Isar alone, gives the daily average number of prisoners. Are we to suppose that in the prison in Bad-strasse there were but eleven prisoners, all of whom had cholera, or were there one hundred prisoners, of whom but eleven had the disease?

It is interesting to know that on August 20th Babette Zintel had diarrhœa with vomiting, and that she had been in prison three days when she was taken sick; but we should like to know from what quarter of the city she came to the prison, whether or not she had been exposed to the infection before her arrest, and whether prior to August 20th there had been any case of diarrhœa in the prison. We should have liked also to know something about the sewer connections of the prison, about its water supply, about the condition of the cells or other dormitories, about the food-supply, the care exercised in its cooking, and the conditions of the individuals by whom that menial office was performed. These and some other points would have been of general interest, but they possessed none in Pettenkofer's eyes. He evidently desires to demonstrate that he is correct as to the two distinct epidemics, which he considers proved by three of the prisons having been infected in August, and the other three in October, November and December; and to have the opportunity of stating that "the cholera

could not this time find its way from the prisons for unconvicted persons at Munich into the nearest situated prison, the great gaol at Munich, in spite of numerous prisoners having been removed there."

But what does it all amount to? Absolutely nothing—the fact even upon his own showing is that the epidemic was continuous from July 21st to March 24th, but while he writes of the sporadic cases in October and of the isolated cases of the early days of November, he takes no record of the numerous diarrhœal cases which occurred.

Pettenkofer is especially "child-like and bland," when he expresses the hope, that further particulars will soon appear in a minute report of the District Surgeon, Dr. Frank.

The audacity of this remark is absolutely charming. Pettenkofer well knew when he penned those lines, and when in 1875 he allowed them to go into print in English, that the official report of Dr. Frank had already been published, but he was probably misled, when he prepared the translation which in a recent paper he especially commends to the Americans, by the hope that the knowledge of Frank's report had not crossed the Atlantic. As, however, the report of Frank is such a complete refutation of the statements of Pettenkofer, we will use for purposes of comparison an abstract of that report by Dr. John C. Peters, in the Report on the Cholera Epidemic of 1873 in the United States (page 692), and for corroboration would refer our readers to the Report on Hygiene for the year 1873, by the late Dr. E. A. Parkes—British Army Medical Department Reports for the year 1873, page 203.

"In the last outbreak in Munich in 1873 and 1874, the facts were as follows: The disease had commenced in May, 1873, in Vienna before the opening of the great exhibition there. In June it was present in Russia, as it had been for years, and in Bohemia, Galicia, Hungary, in the German provinces of Bromberg, Marienwerder, and Danzig; also in Saxony, in boats on the Elbe, and in two villages near Dresden. Hence the danger of importation into Munich was great and increasing. On June 25th an American clergyman (Mr. Wood) came from Vienna, put up at the Hotel Reinischen Hof, with fully developed chol-

era, but was removed to the hospital, without being allowed to use the privy, and died in the afternoon. On June 29th another person came from Vienna by way of Nuremberg, and died. Both he and Wood had lived at the Hotel Donau in Vienna, in which the well-known great outbreak occurred. A third person from the Hotel Donau died June 24th at Neveto, Italy. The room occupied by Mr. Wood and the railroad car in which he traveled were cleansed and disinfected."

"No other fatal case occurred for twenty-one days, when on July 16th another case from Vienna, by way of Darmstadt, was imported into another hotel and was quickly removed to the hospital, where he recovered. The third case was a street-sweeper in a distant part of the town. The fourth was an infant four months old, July 19; and the fifth its mother, July 21, who had received a visit from an apparently healthy professor from Vienna. The house was washed and purified. The sixth was a railroad-laborer, who sickened July 17 and died on the 22d. The seventh, July 22, was a laborer, who recovered. The eighth case was a body-servant of Prince Leopold, who came sick with diarrhœa from Vienna, on July 19, stayed at the palace and then went on to Lindau, where he died on the 23d. His bed at the palace was burned, and disinfection and fumigation were carried out in the most thorough manner. The ninth case, July 27, was a locksmith working at the central works of the State railroad. He had had diarrhœa for four days at home, and was then taken to the hospital, where he died on the 29th. There was no prevalence as yet of diarrhœa in Munich. The sister of the last case, who had been with him during his sickness, but lived at a distant house, took some of his soiled clothes to wash (although she denied it stoutly), and had a severe diarrhœa for three days. In the same house a fatal case soon occurred, quickly followed by another. These three were the first fatal cases which could be traced to each other. The thirteenth case was fatal, in a cook in a distant house, and the cause of her attack could not be traced. The fourteenth case came from Papau, where no cholera was acknowledged, put up at a house where suspicious cases of diarrhœa had occurred, and died after removal to the hospital. Her child, who slept with

her, remained well. The fifteenth case, August 2, occurred in the barracks of the cadet corps, in a servant, the origin of which could not be traced, but was followed by two other cases on the 10th and 11th of the same month.

"The first cases on the right side of the river Isar seemed sporadic and did not prove productive. Those on the left side spread gradually to others, and finally over the whole city. Such was the commencement of an epidemic which culminated in 3,040 cases, of which 1,923 were called cholera, with 1,155 deaths, and 717 were reported as cholerine, with 305 deaths and 812 recoveries. 224 house epidemics were noticed, with 1,008 cases, 581 deaths and 527 recoveries. 114 houses had 3 cases each; 48 had 4; 27, 5; 16, 6; 4, 7; 3, 8; 3, 9; 2, 10; 2, 13; and 1 house each had 16, 27, 30, 31, 50 and 68 cases. In all there were 2,070 affected houses with 3,040 cases. 623 cases occurred on the north side of houses, 755 on the east, 826 on the south, and 592 on the west. There were 17 cases in cellars, 667 on the ground floors, 867 in the second stories, 631 in the third stories, 398 in the fourth, 163 in the fifth, and 19 in the sixth. The number of cases in the different stories depended entirely upon the number of dwellers and their sanitary relations.

"There were 103 epidemics confined to single stories of houses, with 199 deaths and 183 recoveries. There were 20 epidemics confined to single rooms.

"The state of the ground-water was in opposition to the Pettenkofer theory. The drinking-water was found for the first time in Munich to have exerted an influence upon the spread of the disease.

"Many cases proved that the disease was infectious at times, at others not. The portability of the disease was often proved, but it was impossible to connect all the fatal cases together. Some of the imported cases seemed to produce no further result than the one death. Only 10 washer-women out of 102 were affected, but disinfectants were generally used. Taking cold seemed to bring on attacks in 140 cases; mistakes in diet in 251; the use of bad cheese and sausage in 47; bad beer and wine in 38; poor vegetables in 42; and exposure to other cases in 215. Preceding diarrhœa was noticed 1,087 times."

Upon this account, Dr. Peters remarks, "hundreds of travelers must have come from Vienna to Munich, but none of the diarrhœal cases were detected; and only a few of well-pronounced cholera. These travelers must have distributed themselves over many and distant parts of Munich. Soon diarrhœa, which had not previously existed, began to prevail, with here and there a severe or fatal case of cholera in widely separated houses. In order to have studied the outbreak thoroughly, every arrival from Vienna should have been watched, his place of residence become known to the health officer, and his wanderings to and fro recorded, and the results obtained. This is, of course, a very difficult matter in large cities, but it is not impracticable, and one epidemic thus studied would doubtless clear up all the obscure points about every outbreak of the disease. Until this is done nothing absolutely satisfactory will ever be known, and it will be time and money well spent to do it."

A very important portion of the report of Dr. Frank is that which relates to variations of the "ground-water" and to the general water supply of the city of Munich. Of the former he writes: "In January, 1873, the ground-water was relatively deep; it rose in March, and on the 30th of June was higher than it had been for a long time. At that time the cholera commenced; the ground-water fell a little in July, but rose again in August, so that on the 27th of August it stood at its highest point; but while it was thus rising the cholera was at its greatest intensity; from the 27th of August the ground-water fell continuously until November, and during all this time cholera declined, while, according to Pettenkofer's theory, it should have increased; on the 19th of November the ground-water began to rise, and exactly at this time cholera again increased and reached a second acme;* in January the ground-water fell; cholera was less than in December, but still was more than in October and November."

Upon this evidence Dr. Parkes remarks: "In fact, not to go into details, it seems certain that no connection could be maintained between the changes in the ground-water and the cholera cases, and Pettenkofer's hypothesis has thus received a

* The winter or second epidemic of Pettenkofer.

severe and perhaps fatal blow in the very place where the evidence was supposed to be most favorable to it."

It may perchance be urged that this paper is a more extended review than is called for by the introductory pages of the work in question, and that it partakes more of the character of an attack upon Dr. Pettenkofer than that of an ordinary review; but the time has come when "blind leaders of the blind" must be exposed. Pettenkofer occupies so exalted a position in the scientific world that a vast number of students, and even of those who claim to be medical teachers, follow blindly in any avenue of thought where he may choose to lead. The history of cholera among convicts has been translated and published by an American House; it is therefore accessible to the Profession; but the volume of Dr. Frank's report has not been translated, and but comparatively few medical men in this country are aware of its existence; therefore should the statements of Pettenkofer be allowed to pass unchallenged, his deviations from the facts would be quoted as undoubted truths.

The work of which we are treating purports to be an historical account of an outbreak of cholera which occurred in 1873 at the Bavarian penal establishment at the town of Laufen; but after careful study we are compelled to record our opinion that, as an intelligible history of a cholera outbreak, the work is a *failure*, while as a theoretical covering up of facts and as a concealment of truths, it is not only the success of the author's life, but of the nineteenth century. To attempt to follow the author through all of his tortuous reasonings would be ineffably stupid; we will therefore attempt the task of reducing the chaos of the work to something which may resemble order and system.

Laufen is a town of about 2,000 inhabitants, on the eastern termination of the Bavarian table land, in an air-line about sixty-five miles southeast of the city of Munich. The town is built upon a narrow neck of high land, upon the banks of the river Salzach, and is so situated that the east, north and west faces of the town are upon the river. The prison stands at the northern extremity of the town, having its eastern face upon the river, the bank upon which it is built being a little over

forty-eight feet above the mean level of the river. The establishment has a capacity of 500 prisoners, and was opened as a prison in 1863.

The main building was formerly the residence of the archbishops of Salzburg, and was built in the year 1694. In 1861 the process of converting it into a prison was commenced, the buildings having for years been used for various purposes, the most recent of which was as a cavalry barracks.

In converting the old building (the chateau) into the main prison building, it was left unchanged, except that the staircase, privies, cess-pools and drains were newly constructed. The building which had been formerly a stable, then a salt-magazine, and lastly, a storehouse for wood, was converted into a hospital and a church. That portion of the building which was devoted to the hospital is two stories in height, the upper story being a storehouse in which the rope-makers work in bad weather. The church is in one story. From the south and east of the church a building devoted to cells was built, the first story of which has sixteen cells each in two rooms. (The author does not inform us whether there is an upper story or not). West of the hospital are the barracks and the quarters of the director. Eleven canals drain the surface of the enclosure and empty into the Salzach.

The closets and cess-pools of the hospital are at the northwest extremity of the building; the privies for soldiers are upon the line of the southern wall; the cess-pools for the main building are upon the north, east and south sides; those for the new cell-house upon its east face and quite close to the line of the main building. The main building is of irregular form, being upon its eastern face 156 feet in length and upon its western face 116 feet. The north wall is at right angles to the east and west walls, and is 192 feet long. The south wall is at an angle of about 350° to the west wall. The building is four stories in height (with a series of underground rooms upon the west and north sides and two rooms in the southeast corner of the building) enclosing a court-yard, which follows the outline of the building, being fifty-four feet wide on the east, thirty-six on the west, the north line being eighty-four feet long. The arrangements of each floor are as follows:

Under-ground Floor.—The rooms of the northeast corner, extending some seventy feet upon the north line of the building, are occupied as washing and drying-rooms, having an entrance through the eastern wall.

These rooms are in close proximity to the cess-pools of the cell-house and the east cess-pool of the main building. In rear of the wash-house is a room used for the storing of petroleum, and in the rear of this room is one sixty-odd feet in length, used as a potato storehouse. The entrance to these cellars is from the floor above. The cellars for vegetables are in the southeastern portion of the walls, and are entered from the floor above.

The First Story or Ground Floor.—The entrance to the building is in the west; upon the north side of the entrance are various storehouses; on the north side of the building are the fire engine and laundry, and in the northeast corner the laundry and bath-room, adjoined on the east by the brush factory and blacksmiths' shops; then the room of the lamp-lighter, the corridor, and in the southeast corner the kitchen; upon the south side a corridor faces the court-yard, and adjoining the kitchen is the bake-house; next a series of water-closets, and then the bread-room. The remaining rooms upon the south and west are occupied as stewards' rooms and the guard-house. The main staircase of the building is upon the south and between the bread-room and the stewards' rooms. The north side of the court-yard is occupied by a series of lockups and a large gateway. Upon the plan of this floor Pettenkofer indicates no other water-closets or privies than those between the bake-house and bread-room.

The Second Story.—The rooms of the southwest corner are occupied as offices; the remainder of the west side is a large dormitory which opens into water-closets upon the north—adjoining these closets upon the north is the tailors' workshop, and next to it the dormitory of tailors; next an overseer's room, and in the northeast corner a second dormitory for tailors. Upon the east the last dormitory opens into a series of water-closets, and they into the shoemakers' workshop. Next we have the straw-workers' workshop, and in the southeast

corner a dormitory. Upon the south we have, in order, an overseer's room, the lithographers' workroom, a series of water-closets, the staircase and a counting-room. A corridor faces the court-yard upon both the north and south sides.

The Third Story.—The west face is occupied by the spinners', knitters' and glove-makers' workshops; in the southwest corner adjoining, a dormitory, and the remainder of the west front occupied by the weavers' workshop, which adjoins upon the north wall the series of water-closets, then a dormitory, an overseer's room; and the northwest corner is occupied as a dormitory, which upon the east joins a series of water-closets, next to which upon the east is a dormitory, then the joiners' shop, and in the southeast corner the straw-plaiters' workshop. Upon the south face are an overseer's room, the library and office of the chaplain, the series of water-closets, the staircase and the school. Corridors face the court-yard upon the north and south, the eastern portion of the latter being used as a joiner's shop.

The Fourth Story.—The southwest corner is occupied as a dormitory, the next room on the west is a dormitory, and the remainder of the west face is occupied as the spectacle-makers' workshop, which upon the north opens into a series of water-closets. The remainder of the north face is occupied by two dormitories and an overseer's room; upon the east face is the series of water-closets between dormitories, the two remaining rooms on the east being also dormitories. Upon the south face is an overseer's room, the dining-room for overseers, the series of water-closets, the staircase, a dormitory and an overseer's room.*

In the study of these plans it will be observed that the working-rooms upon the ground floor are the laundry (15) and bath-room (16) in the north and east faces, the brush factory (11) and blacksmiths' shops (12) on the east face, the kitchen (20) bake-house (21) and bread-room (23) upon the southeast south faces.

* To facilitate future reference to the different rooms of the main building a number is given each room, by which when treating of individual cases the room will be indicated.

In the second story the tailors' workshop is on the north face (38), the shoemakers' (45) and straw-workers' shops (47) on the east face, and the lithographers' workroom (50) on the south face.

In the third story the spinners', knitters' and glove-makers' (57) workshop is in the southwest corner, the weavers' workshop (58) upon the west face, the straw-plaiters' workshop (72) on the southeast corner, and that of the joiners' (71) on the east front, while a second workroom of joiners (73) encroaches upon the south corridor, opening into the overseer's and chaplain's rooms and into the south water-closets.

In the Fourth Story.—The spectacle-makers' workshop (84) is upon the west face.

No dormitories are upon the ground floor; upon the second floor a large room on the west front (32) which opens on the east into a series of water-closets was occupied by forty-six straw-workers, three tailors and two spinners; upon the north face and in the northeast corner are dormitories (38 and 39) occupied by fifty tailors. In the southeast corner is a dormitory (48) occupied by four bakers, two servants, seven cooks, one basket-maker, three lithographers, two tailors and seven straw-workers; a total of 127 prisoners, of whom 112 worked upon the same floor, thirteen worked upon the ground floor, and two upon the third floor; upon the third floor one dormitory (56) is upon the west face between the workshop of spinners, etc., on the south and weavers on the north. In this room slept sixteen washers, two glove-makers, one spinner and one weaver. Upon the north face are two large dormitories (64 and 67), the one occupied by twenty locksmiths, twelve brush-makers, two tailors, one farm laborer, one basket-maker, one spinner; the other by nineteen farm laborers, four gardeners, three spinners, two weavers, one servant, one tailor. Upon the east face is a dormitory (70) in which slept nineteen joiners, twenty-four straw-workers, three spinners, two glove-makers, two tailors, one book-binder, one shaver—a total of 139, of whom 59 worked upon the third story, 24 were employed in out-door work, 49 in basement and ground floor, 6 in the second story, and one in general employment on all floors. Upon the fourth

floor in the southwest corner is a dormitory (83) which was occupied by eleven shoemakers and one tailor; adjoining this upon the west is a dormitory (82) which was occupied by nine shoemakers and two weavers. Upon the north face are two large dormitories (91 and 94) occupied by eighty-eight spectacle-makers and one weaver. The east face is occupied by three dormitories (97, 98, 99), the first containing thirteen spinners, ten washers, ten weavers, eight straw-workers, two tailors, one cleaner, one rope-maker; the second by twenty-one rope-makers, nine spinners, seven weavers, three spectacle-makers, three cleaners, one tailor; the third (in the southeast corner) by eleven weavers, three spinners, two glove-makers, one tailor. One dormitory (80) is upon the south face, west of the staircase, and contained twenty shoemakers, two spectacle-makers, 1 spinner; a total of 241, of whom 93 worked upon the floor, 22 in the open air or over hospital, 14 in basement or on ground floor, 53 on the second story, and 59 on the third story.

It is thus shown that a mixed occupancy of the dormitories existed; that the day and night relations of the prisoners were widely different; that a man who was employed during the hours of work in one of the basement rooms or in the loft over the hospital was placed in any dormitory. The location of the several water-closets and their relations to workshops and dormitories is a matter of no small interest. We shall therefore consider them separately.

The main building is supplied with three large cess-pools situated upon the north, east and south walls. The cess-pool upon the north side is forty-six feet from the face of the west wall; that of the east side thirty-six feet from the face of the north wall; that of the south side eighty-six feet from the face of the east wall; the cess-pool of the cell-house being upon the east face of that building, and but six feet from the north line of the main building.

"These cess-pools are built of brick and cement; they are fourteen feet in diameter and twenty feet in depth; all are carefully closed at the surface, and are so constructed that the solid and fluid matters are separated. The fluid matter is removed every week by means of syphons, and the solid matters are

taken away in carts every six or eight weeks, and employed as manure on the lands belonging to the institution."

Into these cess-pools the water-closets of the institution empty; upon the ground floor but one set of water-closets are found; they are upon the south side of the building, and are situated between the bake-house and bread-room, and open into the corridor upon which is the kitchen. Upon the second story there are three sets of water closets; one upon the north side, opening into a dormitory and the tailors' workshop; one upon the east side, opening into a dormitory and the shoemakers' workshop; one upon the south side, between the lithographers' workroom and the main staircase.

Upon the third story there are three sets of water-closets; one upon the north side, opening into the weavers' workshop and a dormitory; one upon the east side, opening into two large dormitories; one upon the south side, next to the chaplain's office and opening into the joiners' workshop. Upon the fourth story there are three sets of water-closets; one upon the north side, opening into the spectacle-makers' workshop and a dormitory; one on the east side, opening into two large dormitories; and one upon the north side next to the overseer's dining-room and opening into the corridor.

As to these privies, we quote from the author: "The institution has partly the tub system, partly the cess-pool system with descending pipes, and the arrangements are the same throughout all the stories.

"A cast-iron pipe 0.2 metres in diameter proceeds from each cess-pool (including that for the cell-prison and that for the hospital, which do not belong to the main building) through all the stories, and has a free opening above the roof. This pipe receives lateral pipes in each story, in a convenient corner, which come from the individual closets. Thus for instance the pipe coming from the cess-pools on the south side of the main building receives four on the ground floor, and just as many in the first, second, and third stories, therefore altogether sixteen.

"The closet-pipe on the north side of the house receives none on the ground floor; in the first, second and third stories six each, or eighteen altogether; that likewise on the east side receives pipes from eighteen closets.

"These privies, grouped together around one main pipe, are as a rule divided into halves, and are accessible to somewhat large adjoining rooms. * * * * * *

"The workrooms and dormitories which do not enjoy such free access to these privies make use of wooden tubs, which are then emptied into these privies, and cleaned in the court-yard with water, which flows through canals down to the Salzach" (p. 12).

We revert again to the plans, and find that upon the ground floor the prisoners who work in the kitchen, bake-house and bread-room have access to the closets, but that those in the blacksmiths' shops, brush-factory and laundry, and those confined in the lockups, use the wooden tubs, which are then carried into the immediate vicinity of the bake-house and bread-room to be emptied. Upon the second floor only the occupants of the dormitory upon the west face of the building, and the prisoners employed in the tailors' workshop, the occupants of the dormitory in the northeast corner of the building, the shoemakers and the lithographers have access to the closets, while the tailors in one dormitory on the north side, the straw-workers and the occupants of dormitory in the southeast corner of the buildings must make use of the tubs. Upon the third floor, the weavers in their workshop and the occupants of dormitories on the north face, the occupants of dormitory on the east face and the joiners, have access to the closets; but the straw-workers, the spinners, knitters, and glove-makers in their workshops and the occupants of small dormitory on the west front, must use the tubs.

Upon the fourth floor one workshop and three dormitories have access to the closets, but the occupants of five dormitories must use the tubs.

And now we are in a serious dilemma; we have located our prison, converted it from its original to its present use; we have identified the employment of all space in the main building; but we want water. A penal establishment of sufficient size to accommodate 500 convicts must have a liberal water supply; but where or whence the Bavarian prison at Laufen obtains its water from for many domestic purposes is at present a mystery.

Upon plan 1 we find a well indicated in a garden at the southeast portion of the enclosure, and again a second well indicated in the hospital court-yard, but there is nothing else. In the text we find upon page 11 these two wells mentioned, but then only to prove that they could not contain filtered Salzach water, as to reach them the author says the water would have to flow up hill. But upon page 75 we learn that all the drinking water for the prisoners is pumped out of the well in the hospital court-yard, that the wash and bath-houses are supplied from it, and that most of the water for cleaning purposes was taken therefrom; also on page 76 we are told that the kitchen is supplied with running water conducted from the opposite bank of the Salzach, but that it is used only for cooking and washing up, but absolutely nothing else. A great royal penal establishment left to draw its entire water supply from but a single well.

Fifty-five iron pipes leading from three great cess-pools opening into a great three-storied building, occupied by 507 convicts (according to numbers stated on plans) and absolutely no water by which the pipes may be flushed! A picture worthy of attention, although it did not arrest that of the professor of hygiene.

As a single well supplies water for so large an establishment, we may surely expect to find a very accurate description of it; but the most careful search fails to elicit any prominent facts. We will, however, endeavor to string together the pearls as they may be dug out. Upon page 10 he informs us, upon the authority of the town well-sinker, that a well in the higher part of the town must be a little over sixty feet deep to obtain water; that in sinking a well at this locality the shaft passes through sand and gravel for about forty-eight feet, through a hard conglomerate for less than two feet, and through sand and gravel with a soft conglomerate for about twelve feet, when gravel with water is reached.

The prison is built upon the highest portion of the town of Laufen, the surface of which is a little over forty-eight feet above the mean level of the river Salzach. Therefore a well sunk from that surface sixty feet in depth must of necessity

be twelve feet below the mean level of the river. We therefore fail to appreciate the force of the author's statement, that if these wells contain filtered Salzach water, "the water would have to flow up hill in order to reach them." In the introductory chapter nothing else is said about this well.

We therefore turn to ground plan 1 for further information. We find that this well is in the centre of the hospital court-yard, about thirty-four feet from the west face of the cell-house; sixteen feet east of the well is a mud reservoir, and fifty-three feet west is a second mud reservoir. A canal from the barracks building passes within ten feet north of the well, and a canal from the main building passes four feet east of it.

The well appears to have a pump connection with both the main building and the cell-house.

Upon page 76 the author again reverts to this well and to the prison supply of water, which we have already noted, but adds: "The water from the pump in the hospital court-yard is preferred by all for drinking purposes to the water laid on, because it always tastes fresh and good, and has the same temperature in summer and winter. After violent and continuous rain it exhibits here and there a little turbidity, but no material change in taste."

Considerable space is now devoted to a chemical comparison between the water of this well and that which is laid on from Oberndorf, and on page 79 our author demonstrates to his satisfaction that this much-used well must be supplied from "ground water," and he adds: "There exists therefore at all times a possibility of matters which pass into the ground water from the surface getting also into this well from different parts of the subsoil. It must be admitted beforehand that a pollution of the ground water of the establishment is possible, and that the opportunities are many. There is no necessity to call to mind the large cess-pools, which, however well cemented, are yet not absolutely water-tight, as had been unmistakably proved in the case of the northern cess-pool (it is true only on the occasion of its being overfilled) by its contents penetrating into the cellar; there are other opportunities still nearer at hand. Not only is water pumped in the hospital court-yard, but there

is also much cleansing and scrubbing, even privy tubs are washed there, and very much dirty water is poured into the sinks and drains there throughout the whole year. It would be surprising if nothing at all passing from the surface reached the ground water supplying the well through this soil."

To determine the question whether substances pass from the soil into the well, Pettenkofer threw twenty-five pounds of rock salt into the "mud reservoir" (which is nothing but a sink), which is sixteen feet east of the mouth of the well, and a few days later he threw the same quantity of salt into the sink, which is fifty-three feet west of the mouth of the well. He then examined forty-two specimens of the water from the well and discovered nothing—a most valuable and highly scientific experiment. We are able to form no opinion as to the external condition of this well, whether it was protected from or exposed to surface washings, whether it was curbed or not; we know nothing of its chemical composition, save that it is "calcareous hard water" (page 76), and that it yielded 7.5 milligrammes of chlorine per litre (page 79); but we have been able to learn this—that in a very porous soil a well at least sixty feet deep was dug—that in close proximity to its mouth are several drainage canals, and two large sinks or "mud reservoirs," into the latter of which, in addition to other fluid filth, are thrown the washings of tubs used as "night closets" by at least 183 convicts, as well as those used night and day by convicts confined in the lockups, and during the day by the convicts working in laundry, brush factory, and blacksmiths' shop—by the straw-workers, the knitters and glove-makers, and by the straw-plaiters and the rope-makers.

We are now in condition to attempt the study of the cholera outbreak at the prison at Laufen in 1873. The task of sifting the verbiage of Pettenkofer is perplexing, and we are constantly reminded of the remark of Parkes—"Pettenkofer's view is rather difficult to understand," and assuredly his narrative of events is no less difficult to comprehend.

It must be remembered that during the summer of 1873 cholera was very generally diffused throughout central Europe; that the first case of the disease in Munich was on the 25th of

June; that although a few scattering cases are recorded, it was not until June 19th that the epidemic influences began to be observed in that city. The prison of Laufen is in constant communication with Munich, as it seems to be a Bavarian custom to commit prisoners to the penitentiary for very short periods of confinement.

According to Pettenkofer this prison was free from cholera until the last ten days of the month of November, but on page 13 he distinctly states that in August a man who had been for some time in confinement died of cholera after ten hours illness, that on October 6 a man who had a short time before come from Aichach via Munich was attacked with choleraic diarrhœa, and he adds: "As, however, these attacks did not occur more frequently than usual at this time of the year, when no epidemic of cholera was in the neighborhood, the institution could in reality be declared free from cholera up to the end of November." Pettenkofer therefore intimates that each year cases of cholera and of choleraic diarrhœa occur at Laufen.

The fact is noted, that prior to this case of cholera and of choleraic diarrhœa, a few cases of dysentery and diarrhœa had occurred in the prison. But to Pettenkofer's mind the events of August, September and October, 1873, were so unimportant that no investigation into them was necessary. To other minds, however, it would have been a matter of great interest to have determined the exact number of such cases, the workshops in which they were employed, the dormitories in which they slept, the privies used by them, or into which the night or day "tubs" used by them were emptied. It would have been a point of great interest to have located in every particular the cases of cholera and choleraic diarrhœa; to have known the condition of the various cess-pools (the fluid contents of which were emptied every week, but the solid contents every six or eight weeks), and into which cess-pools the excreta of the cholera case of August and the choleraic diarrhœa case of October were cast; but information was furnished upon none of these points.

We are told, however, that "immediately on the outbreak of cholera in Munich every effort had been made in all Bavarian prisons to prevent these institutions becoming infected, without

interrupting the committal of prisoners to the prisons for unconvicted persons or penal prisons, or their removal from them. The measures adopted, which consisted essentially in thorough disinfection of the excrements with sulphate of iron, enforced cleanliness, warm clothing, increased hygienic care in general, and then in careful medical inspection of all attacks, especially all cases of diarrhœa, seemed also to be effectual; for with the exception of three prisons for untried prisoners in Munich itself, where a few mild and sporadic cases occurred, the cholera did not find its way during the summer epidemic into the great prisons of the country, which received many reinforcements at that time out of and via Munich."

If this book of Pettenkofer's is to be considered a true exposé of the condition of affairs at the Laufen prison, we may form our own opinion as to the efficiency of the precautions therein adopted.

We shall endeavor to collate from the succeeding twelve pages a connected account of the diarrhœal cases which preceded the cholera outbreak. The data furnished are, however, imperfect, unsatisfactory and disjointed; one is almost led to suspect that it was the object of the author to mislead, rather than to develop the facts. No accurate statement as to the number of convicts in this prison during the month of November, 1873, is given; it is stated that it was rather more than 500, but the definite statement is made that on the 5th of December the total number was 522. Among the convicts there are reported 128 cases of cholera, 136 cases of diarrhœa and 43 cases of choleraic diarrhœa, a total of 307 cases, with 81 deaths from cholera and two from choleraic diarrhœa, a total of 83 deaths. The limits assigned by the author to the epidemic are November 20 and December 21, a period of 28 days. The epidemic reached its acme from the 4th to the 7th of December, during which period 102 cases of cholera occurred with 64 deaths, and 21 cases of choleraic diarrhœa and diarrhœa with no deaths. The first case of cholera was reported November 29, the last December 15. The first cholera death occurred November 30, the last December 9. The first death from choleraic diarrhœa occurred December 8, the last December 12. Upon one

table (page 16) the first diarrhœal case occurred November 20, but upon another table (page 25) it is given as upon November 19, while upon page 19, the second table, a case of diarrhœa is recorded upon November 5. This discrepancy is remarkable in one who assumes such painstaking accuracy. We are led to suppose that many interesting cases of simple diarrhœa occurring immediately after admission to the prison were unnoticed, from the following remark (page 17) in regard to the symptoms which were held to be diagnostic of the different maladies:

"Diarrhœa (white evacuations three or four times or oftener in twenty-four hours) was only considered and denoted, apart from its coïncidence with the time of the epidemic, as specific, when accompanied by a state of general nervous depression (præcordial anxiety, turgescence of the carotid pulse, tinnitus aurium, moderate vertigo), to distinguish it from gastric affections (dyspepsia) which constitute a permanent object of outdoor treatment in about two or three per cent. of the inmates."

It is evident that no especial supervision of the privies was instituted to detect men who had any tendency to "looseness of the bowels," and that only those cases came under medical observation in which the diarrhœa was pronounced. To those who believe that cholera is the result of a specific poison which must gain access to the alimentary canal before its effects can be produced, this extract is most significant, and we can not fail to record our regret that another magnificent opportunity has been lost of obtaining positive evidence; not only was the opportunity lost, but the demonstration resulted in but another perplexing blunder.

We shall now proceed to consider the diarrhœal cases which preceded the cholera outbreak.

The case of November 5 was a basket-maker, Böck, who had been in prison three days. He worked in room 47 on the second floor, and slept in dormitory 48 on the same floor. He therefore used a "tub" both day and night. This tub would be naturally emptied into the south privy.

The cases of November 19 were a tailor, Adlhoch, who had been in prison seven weeks, and worked in room number 38 on the second floor, the other was a spinner, Ziegler, who had been

in prison two months and worked in room 57 third floor. They both slept in dormitory number 32 on the second floor. The tailor had access both day and night to the north privies. The spinner was obliged to use the "tub" during the day and the north privy at night. The tailor Adlhoch was treated in the hospital; the spinner, Ziegler, was treated in his quarters. The case of November 20 was a man, Lorenz, who had been in prison for two months; he was in solitary confinement but was removed to the hospital.

The three cases of the 21st were (1) a spectacle-maker (Maier), who had been five months in prison. He worked in room 84 on the fourth floor, and slept in dormitory 94 on the fourth floor. He therefore used the north and east privies. He was treated in hospital.

(2) A rope-maker, Fuhreisen, four and a half months in prison, who worked either in the open air or in the loft over the hospital, and slept in dormitory 98 on the fourth floor. It is not stated what privy this man used during the day, but he used the "tub" at night. He was treated in hospital.

(3) A weaver, Müller, one and a half years in confinement, who worked in room 58 on the third floor, and slept in dormitory 99 on the fourth floor. This man used the north privy during the day and a "tub" at night. He was treated in hospital.

The two cases of the 23d were (1) a joiner, Andre, who had been five months in prison, worked in 71 or 73 on the third floor, and slept in dormitory 70 on the same floor. He used the south privy during the day and the east at night. He was treated in hospital.

(2) A joiner, Leibhardt, who had been in prison ten days. The table upon p. 25, gives the dormitory of this man as hospital. He is, however, not included in the list of those treated in hospital, his name being among those treated as out-patients; i. e., those receiving treatment but remaining in their quarters. In the table upon page 20, we, however, find some particulars about this man. He was admitted November 14th, worked in room 71 third floor, slept in room 70 on the same floor; during the day he would have had access to the south privies, but during the night to those on the east.

The cases on the 24th were (1) a rope-maker, Gassner, who

had been in prison five months. He worked in the open air or over the hospital, and slept at night in dormitory 98 on the fourth floor, and used the "tub" at night. This man was treated in hospital.

(2) A spinner, Holzmüller, who had been in prison ten days. He worked in No. 57 on the third floor, and slept in dormitory No. 97 on the fourth floor. He therefore used the "tub" during the day and the east privies at night. Was treated in quarters. In the first table, upon page 19, we find that this man Holzmüller was received from Munich November 15th. He had, therefore, been in the prison but nine days.

The cases of the 25th were (1) a weaver, Baumgartner, who had been in confinement ten months. He worked in No. 58 on the third floor, and slept in dormitory 99 on the fourth floor. He therefore used the north privy during the day and the "tub" at night. He was treated in his quarters.

(2) A shoemaker, Berger, in confinement two months. He worked in No. 45 on the second floor, and slept in dormitory No. 83 on the fourth floor. He therefore used the east privies by day and the "tub" at night. He was treated in his quarters.

(3) A joiner, Brumbauer, two months in confinement; worked in shops 7 and 73 on the third floor, and slept in dormitory No. 70 on the same floor. This man had access to south privies during the day and the east privies during the night. He was treated in his quarters.

(4) A straw-worker, Göberle, who had been in confinement three months; worked in shop 47 on the second floor, and slept (according to table on page 25) in hospital. He was treated in hospital. His prison dormitory is not indicated. He used the "tub" when at work.

The cases of the 26th were (1) a washer, Mumhofer, four months in confinement. He worked in rooms 15, 16, or in the basement, and slept in dormitory on the third floor. He therefore must have used a "tub" both day and night. He was treated in hospital.

(2) A joiner, Greiner, six months in confinement; worked in rooms 71 and 73 on the third floor, and slept in dormitory 70 on the same floor. He therefore used the south privy in the day and the east privy at night. He was treated in his quarters.

(3) A straw-worker, Höss, three months in confinement; worked in shop 47 on the second floor, and slept in dormitory 32 on the same floor. He therefore used the "tub" by day and the north privy by night. He was treated in his quarters.

The case of the 27th was a weaver, Reischl, five months in confinement; worked in No. 58 of the third floor. He would, therefore, use the north privy in the day and the east at night.

The cases of the 25th were (1) a shoemaker, Mohrhardt, in confinement twenty-six days. He worked in No. 45 of the second floor, and slept in dormitory 83 on the fourth floor. He used the east privy by day and the "tub" at night. This man was treated in hospital.

(2) A shoemaker, Enzenberger, in confinement one month. He worked in No. 45 of the second floor, and slept in dormitory 86 on the fourth floor. He therefore used the east privy by day and the north privy at night. Was treated in his quarters.

Upon this day one Gallecker was received from Munich sick with diarrhœa. He was placed in solitary confinement (in which he was obliged to use the tub) until December 4th, when he was put to work in No. 72 on the third floor, and given a bed in dormitory No. 70 on the same floor, where we are told he was again taken with diarrhœa on the 10th. He therefore used the "tub" during the day and the east privy at night.

These diarrhœal cases were therefore distributed throughout the main building. One case occurred in the tailors' workshop; two cases occurred in the spinners', knitters' and glove-makers' workshop; one case occurred in the spectacle-makers' workshop; three cases occurred in the weavers' shop; four cases occurred in the joiners' shop; three cases were in the shoemakers' shop; two cases among the straw-workers; one case among the washers; one case among the straw-plaiters, and two cases from the lockups. Three cases occurred in dormitory No. 32; one case in dormitory 56; five cases in dormitory 70; two cases in dormitory 83; one case in dormitory 86; one case in dormitory 94; two cases in dormitory 97, and two cases in dormitory 98.

The privies upon the north face of the building were used by ten of the cases; those in the east face by eight of the cases: those in the south face by four cases, and "tubs" were used by

twelve of the cases. The discharges from ten of the cases went into the hospital cess-pool.

In treating of these diarrhœal cases, Pettenkofer is singularly reticent as regards the cholera case of August, the case of choleraic diarrhœa of October, and the cases of dysentery and diarrhœa which occurred about the same time. He asserts that Holzmüller and Mohrhardt were the only cases which could be regarded as the immediate forerunners and importers of cholera, and leaves it to be inferred that both were without any symptoms of illness prior to the dates he has given, November 24th and November 28th; but it is most remarkable that he makes no notes whatever of the joiner, Leibhardt, who, admitted to the prison November 14th, was employed in the workshop (71) that had the greatest number of diarrhœal cases, and slept in dormitory No. 70, which exhibited the same diarrhœal tendency. The diarrhœa of Leibhardt must have been but slight in quantity and painless in character, as he was not taken into hospital, but was treated in his quarters. It must have been one of those insidious diarrhœas which exist for some days before the patient comes to medical notice, and Pettenkofer's absolute silence as to the case is strong proof that it had a longer existence than that noted.

We desire to make a special record of these diarrhœal cases:

Occupation.	Name.	Disease.	Date.	Time in Prison.
Basket-maker	Böck	Diarrhœa	Nov. 5th	Three days.
Tailor	Adlhoch	"	Nov. 19th	Seven weeks.
Spinner	Ziegler.	"	"	Two months.
Locksmith	Lorenz	"	Nov. 20th	Two months.
Spectacle-maker	Maier	"	Nov. 21st	Five months.
Rope-maker	Fuhreisen	"	"	4½ months.
Weaver	Müller	"	"	Year and a half.
Joiner	Andre	"	Nov. 23d	Five months.
Joiner	Leibhardt	"	"	Ten days.
Rope-maker	Gassner	"	Nov. 24th	Five months.
Spinner	Holzmüller	"	"	Ten days.
Weaver	Baumgartner	"	Nov. 25th	Ten months.
Shoemaker	Berger	"	"	Two months.
Joiner	Brumbauer	"	"	Two months.
Straw-worker	Göberle	"	"	Three months.
Washer	Mumhofer	"	Nov. 26th	Four months.
Joiner	Greiner	"	"	Six months.
Straw-worker	Höss	"	"	Three months.
Weaver	Reischl	"	Nov. 27th	Five months.
Shoemaker	Mohrhardt	"	Nov. 28th	Twenty-six days.
Shoemaker	Enzensberger	"	"	One month.
Straw-worker	Gallecker	"	"	One day.

This list will be useful for future reference, but at present we will content ourselves by stating that it will be found to contain two more names than are in the list of Pettenkofer, on page 25. Gallecker must be included in the list, for although he was in solitary confinement upon his arrival, still the "tub" used by him must have been emptied into the south privy, into which the tub used by the basket-maker, Böck, also must have been emptied.

These are facts of great importance in the investigation of the epidemic outbreak. Pettenkofer lays no store by them. He enters into a dissertation upon the cases of gastric disorder which occurred in the prison in 1872, but we are of opinion that it is a matter of not the slightest importance how many cases of gastric disorders occurred in 1872, or even in 1871, or that in those years they outnumbered the cases of the same class in 1873; it is a question simply as to the specific poison of cholera. There was no cholera at Laufen in 1871 or 1872, but there was cholera at Laufen in 1873.

We desire also to make record of the following point in the history of these diarrhœal cases: Three cases of diarrhœa occurred in the weavers' shop; four cases of diarrhœa occurred in the joiners' shop; three cases of diarrhœa occurred in the shoemakers' shop, and cases of the same disorder occurred among the inmates of all working-rooms, save the brush factory, the blacksmith shops, the kitchen, the bake-house, the bread-room, and the lithographers' workroom.

Dormitories 32 and 48 upon the second floor had diarrhœa among their inmates; dormitories 56 and 70 upon the third floor had cases among their inmates; dormitories 83, 94, 97, 98 and 99 upon the fourth floor were also infected. Therefore, of the sixteen dormitories within the walls of the main building, nine contained cases of diarrhœa immediately preceding the cholera outbreak. Two of the cells in the lockups had contained diarrhœa cases, and every cess-pool upon the grounds, with but a single exception, had received the dejecta of such cases. The exception was the cess-pool of the cell-house. There are also five of the diarrhœal cases that must be isolated for special study:

I. The basket-maker, Böck, who came from Aichach via Munich; arrived at prison November 2d; was reported with diarrhœa November 5th.

II. The joiner, Leibhardt, who came from Rottenberg via Munich; arrived at the prison November 14th; was reported with diarrhœa November 23d.

III. The spinner, Holzmüller, who came from Munich; arrived at the prison November 15th; was reported with diarrhœa November 24th.

IV. The shoemaker, Mohrhardt, who came from Krumbach via Munich; arrived at the prison November 2d; was reported with diarrhœa November 28th.

V. The straw-worker, Gallecker, who came from Munich; arrived at the prison November 28th suffering from diarrhœa.

Böck used in both workshop and dormitory a "tub," which must have been emptied into the south privy. Leibhardt used the south privy during the day and the east privy at night. Holzmüller used a "tub" during the day, which probably was emptied into the north privy, and the east privy at night. Mohrhardt used the east privy by day and at night a "tub," which must have been emptied into the north privy. He also used the hospital privy. Gallecker used a "tub," which must have been emptied into the south privy. It is, therefore, evident that every privy in the institution used by convicts, save that of the cell-house alone, was infected by the excreta of these diarrhœal cases.

THE CHOLERA CASES.

The first case of cholera which occurred in the prison at Laufen in 1873 was in the person of one Joseph Rosskopf, who had been eight months in prison. He was a weaver, worked in room 58 on the second floor, and slept in dormitory No. 99 on the fourth floor. This man during the day had access to the north privy, and at night used a "tub." In the room in which he worked three cases of diarrhœa had already occurred (Müller, No. 21; Baumgartner, No. 23; Reischl, No. 27). In the dormitory in which he slept, two cases of diarrhœa had occurred (Müller, No. 21; Baumgartner, No. 25). He was treated in hospital and recovered. When he went into hospital, Ross-

kopf had choleraic diarrhœa. He must, in all probability, have had this diarrhœa for at least twelve hours, and the north and south privies must have received his excreta.

On November 30th two cholera cases were reported: 1. Nicolaus Maier, a blacksmith, who had been a year in confinement. He worked in shop 12, upon the first or ground floor, and slept in dormitory No. 64, on the second floor. No diarrhœal case had occurred in either the workshop or dormitory of this man; but he used the east privies at night, and either a tub or the south privy in the day. He was taken to the hospital and recovered. 2. Jakob Ettl, a straw-worker, who had been imprisoned one year and five months. He worked in room 47 on the second floor, and slept in dormitory 48 on the same floor. In the same workroom as Ettl were three of the diarrhœal cases (Böck, November 5th; Göberle, November 25th; Höss, November 26th), and one case of diarrhœa occurred in his dormitory (Böck, November 5th). This man used a tub both by day and night, unless, indeed, he had access to the south privies during the day. He died in hospital December 2d, having been taken ill November 30th.

There is a connection of considerable importance in this case which should be fully developed. Ettl, besides his straw-work, was employed in peeling potatoes (p. 28), which work was performed by himself and eleven other convicts in workshop 47 on the second floor. The potatoes were kept in the cellar under the north portion of the building and close to the north cess-pool. It was found on inspection that the liquid matter from the cess-pool "penetrated in no inconsiderable quantity into that part of the cellar in which the potatoes were stored. The potatoes were, it is true, carefully kept clear of that spot, and tubs were placed under for the reception of the liquids which dropped through, but it was always possible that some of the infecting matter, generally supposed to exist in excrements, might have reached the potatoes, and that the potato-peelers who first came in contact with it received proportionally more of it than the others. But the investigation has proved most positively that no infecting matter can be assumed to have adhered to the potatoes."

What is this positive proof?

1. That the potato-peelers did not suffer proportionally with greater severity than other old men.

2. That they were not all attacked at the same time. This, no doubt, was very convincing to Dr. Von Pettenkofer. What is the simple truth? The fluid contents of a cess-pool, which contained the excreta of several cases of choleraic diarrhœa, leaked into a cellar containing potatoes. The potatoes were carried into the second story of a building, twelve old men were set to work peeling them, six cases of cholera and two cases of choleraic diarrhœa occurred among them, and four men escaped entirely.

On December 1st six cholera cases are reported: 1. Michael Markl, who was received November 29th from the city of Munich. In the first table of page 19 this man is recorded as "under arrest." No workroom or dormitory is assigned. We therefore suppose that he was confined in the lockup, where he used a "tub," which must have been emptied into the south privies. The case was fatal. Upon page 28, Pettenkofer remarks that this case "came from Munich on this day (December 1st) with diarrhœa," whereas the man arrived at the prison two days before. 2. Mayerhofer, a joiner, employed in workroom No. 71 of the third floor, and slept in dormitory No. 70 on the same floor. In the workshop four diarrhœa cases had occurred (Andre, November 23d; Leibhardt, November 23d; Brumbauer, November 25th; Greiner, November 26th), and in the dormitory five cases had occurred (Andre, November 23d; Leibhardt, November 22d; Brumbauer, November 25th; Greiner, November 26th), recovered. 3. Mohrhardt, the convict already reported as having diarrhœa on November 28th, died. Had been treated in the hospital. 4. Mumhofer, the convict already reported as having diarrhœa November 26th, for which he had been treated in his quarters, recovered. 5. Weinhofer, a joiner, but who was sick in hospital with tuberculosis and erysipelas of the face, died. 6. Zöbber, a weaver, in hospital for Bright's disease, died.

Reischl, a shoemaker, was taken with choleraic diarrhœa. He was employed in workroom 45 on the second floor, and slept in dormitory 80 on the fourth floor. Three cases of diarrhœa

had occupied the same workshop (Berger, November 25th; Mohrhardt, November 28th, and Enzenberger, November 28th). In his dormitory no case of diarrhœa had occurred. At the prison there seems to have been two men named Reischl, one a shoemaker, the other a weaver, and these two men Pettenkofer has irredeemably mixed up until they are like the twins Jakob and Hans, one dying the survivor was reduced to despair, never being able to determine which of the two he was. On page 25, Reischl is a weaver, attacked November 27th with diarrhœ, having choleraic diarrhœa December 1st. On page 28, Reischl is a shoemaker, having choleraic diarrhœa December 1st, and on page 42 Reischl is again a weaver, having gastricism in November, diarrhœa December 1st, and choleraic diarrhœa December 5th. This is but another instance of the marvellous accuracy of Pettenkofer.

On the 2d of December four cases occurred: 1. Leibhardt, the joiner, who was reported with diarrhœa November 23d, but who had been treated in his quarters. The attack was fatal. 2. Sagerer, straw-worker and potato-peeler, who slept in dormitory No. 97 on the fourth floor, died. Who the other two individuals were it is impossible to determine.

On the 3d of December six cases occurred: 1. Michael Hackl, joiner, work-room No. 71, third floor, dormitory No. 70 on the same floor, was received at the prison November 1st from Straubing via Munich; fatal. 2. Simon Venus, locksmith, work-room No. 12 on the first floor, dormitory No. 64 on the third floor, was received at the prison November 19th; fatal. 3. Mich. Ingerl, shoemaker, unknown, No. 45 on the second floor, dormitory No. 80 on the fourth floor; six months in confinement; taken with diarrhœa December 2d, with cholera December 3d, died December 7th. 4. Sporrer, knitter and potato-peeler, slept in dormitory No. 97 on the fourth floor; fatal. We are unable to find any clue to the other two cases.

On the 4th of December thirty-three cases occurred, and we will endeavor to collect the record of these cases, but it will be impossible to give them in the order in which they occurred, as Pettenkofer was so much occupied in other things that he neglected to record them: 1. Alois Züllner, a spectacle-maker,

workshop No. 84 on the fourth floor, dormitory No. 94 on the fourth floor, admitted to prison November 6th from Straubing via Munich; recovered. 2. Joseph Pledl, spinner, workshop No. 57 on the third floor, dormitory No. 67 on the same floor, admitted to prison on November 10th; died. 3. Simon Ziller, straw-worker, workroom No. 72 on the third floor, dormitory No. 97 on the fourth floor, admitted to prison November 4th; died. 4. Anton Koch, a farm laborer, dormitory No. 67 on the third floor, admitted to prison November 15th; died. 5. Seb. Schmidbauer, straw-worker, workroom No. 47 on the second floor, dormitory No. 32 on the same floor, admitted to prison November 28th; died. 6. Andr. Sandner, straw-worker, released from solitary confinement December 4th, assigned to dormitory No. 70 on third floor. Had been in prison nine months; died December 8th. 7. Andre, the diarrhœal case of November 23d, who had been treated in his quarters, died. 8. Baumgartner, the diarrhœal case of November 25th, who had been treated in his quarters, died. 9. Brumbauer, the diarrhœal case of November 25th, who had been treated in his quarters, died. 10. Greiner, the diarrhœal case of November 26th, who had been treated in his quarters, died. 11. Jos. Holzhauser, a joiner, workshop No. 71 on the third floor, and dormitory No. 70 on the same floor; in confinement four months; died December 4th. Of the remaining twenty-two cases we can find no record.

On the 5th of December thirty-five cholera cases occurred. They were, as far as can be collected: 1. George Bernhard, brushmaker, workroom No. 11 on the first floor, dormitory 64 on the third floor, admitted to the prison November 2, died. 2. Christbauer, baker, workroom on the first floor, dormitory No. 48 on the second floor, admitted to prison November 2, died. 3. Klingseisen, spinner, workroom No. 57 on the third floor, dormitory No. 70 on the same floor, admitted to prison November 2, died. 4. Brandstetter, tailor, workshop No. 38 on the second floor, dormitory No. 83 on the fourth floor, admitted to the prison November 18, died. 5. Müller, weaver, workroom No. 58 on the third floor, dormitory No. 98 on the fourth floor, admitted to prison November 23, died. 6. Retzer, potato-peeler,

workroom No. 47 on the second floor, dormitory No. 32 on the same floor, admitted to prison November 15, died. 7. Lachenmaier, joiner, workroom No. 71 on the third floor, dormitory No. 70 on same floor, admitted to prison November 26, died. 8. Hötschl, weaver, workroom No. 58 on the third floor, dormitory No. 97 on the fourth floor, in prison one and three-fourths year; died. 9. Hofdeck, weaver, workroom No. 58 on the third floor, dormitory No. 97 on the fourth floor, in prison six and one-half months; died. 10. Hofmarksrichter, weaver, workroom No. 58 on the third floor, dormitory No. 97 on the fourth floor, in prison five months; died without having received any medical aid. 11. Pfefferl, weaver, workroom No. 58, dormitory No. 97, in prison five weeks; died. 12. Reischl, the diarrhœal case of November 27, was treated in the hospital; recovered. 13. Knöpfle, straw-worker and potato-peeler, dormitory No. 32 on the second floor; died. The remaining 23 cases are unrecorded.

On the 6th of December there were 22 cases reported; on the 7th of December there were 12 cases reported; on the 8th of December there were 5 cases reported; on the 9th of December there was one case reported.

It would be possible to isolate a few of the cases which occurred on each of these days, but they would add nothing to the argument.

We would again call attention to the cases of diarrhœa immediately preceding the choleraic outbreak.

It will be remembered that certain of these diarrhœal cases were removed to the hospital for treatment, and it will be found upon examination that in but one of such cases (ten in number) was cholera developed, the shoemaker, Mohrhardt, who had diarrhœa November 28 and died of cholera December 1. As the first cholera case which was recognized occurred on November 29, the day after Mohrhardt was admitted to hospital, the conclusion of Pettenkofer that he should be enumerated among those who were infected in hospital is without a proper basis. One of the diarrhœal cases in hospital, admitted on the 27th, is reported with choleraic diarrhœa December 1. Pettenkofer does not state whether he considers this a case of hospital infection or not.

Eleven of the diarrhœal cases were treated in their quarters, being classed as out-door patients. Of these cases the following had cholera: The joiner Andre, diarrhœa November 23, cholera December 4, died; the joiner Leibhardt, diarrhœa, November 23, cholera December 2, died; the weaver Baumgartner, diarrhœa November 25, cholera December 4, died; the washer Mumhofer, diarrhœa November 26, cholera December 1; the joiner Greiner, diarrhœa, November 26, cholera December 4; died. Therefore of the ten diarrhœal cases admitted to the hospital, but one developed into cholera and one into choleraic diarrhœa Of the eleven diarrhœal cases treated in their quarters five developed cholera and four died.

Upon page 38 Pettenkofer furnishes a table which gives us some insight into the distributions of the disease throughout the institution. It is as follows:

Occupation.	Cholera.	Choleraic Diarrhœa.	Diarrhœa.	Deaths.
95 Spectacle-makers...	20	9	27	9
12 Brush-makers.....	4	1	5	4
20 Farm Laborers.....	3	1	2	2
20 Blacksmiths.....	5	2	3	2
63 Tailors.....	10	6	18	5
21 Joiners.....	11	0	3	11
42 Shoemakers	10	3	18	7
22 Rope-makers.....	3	6	6	2
36 Spinners, etc.....	9	1	6	9
88 Straw-workers.....	24	9	17	13
26 Washers.....	5	2	7	4
36 Weavers.....	15	3	6	8
481 Convicts.	119	43	118	76

The peculiar reasoning of Pettenkofer is in nothing within the pages of his work shown more clearly than in the above table. He proposes to compare the different departments of work with each other, but he sets aside all departments containing less than ten individuals, "because all kinds of accidental circumstances might seriously affect the figures or proportions." Therefore he excludes the four bakers, the seven cooks, the three lithographers, and the two servants who slept in dormitory No. 48 on the second floor, while he includes the two tailors and seven straw-workers, who also occupied the dormitory.

The four bakers, however, furnished one case of cholera, two cases of diarrhœa and one death; the seven cooks gave one case of cholera, one of diarrhœa and one death. The lithographers escaped.

He excludes from consideration the four gardeners and one servant who slept in dormitory No. 67 on the third floor, while he includes the farm laborers, spinners, weavers and the tailor who occupied the same room. The four gardeners, however, furnished one case of cholera, one of diarrhœa and one death.

The servants, two of whom slept in dormitory No. 48 and one in dormitory No. 67, furnished one non-fatal case of cholera. From dormitory No. 70 he excludes the two glove-makers, one book-binder, and the barber, including the forty-eight other occupants of the dormitory, while the barber and one glove-maker died of cholera, and the other glove-maker had diarrhœa.

From dormitory No. 56 he excludes two glove-makers, who escaped the disease, and carries out the same plan of reasoning in regard to other rooms.

As an illustration, we will look into dormitory No. 70 on the third floor, the total occupancy of which was 52, from which number he excludes two glove-makers, the book-binder and the barber. Prior to the cholera outbreak six diarrhœal cases had occurred among the occupants of this room, while during the epidemic 17 cases of cholera, 2 of choleraic diarrhœa, 10 of diarrhœa had occurred; a total of 29 cases of sickness, yielding no less than 15 deaths.

We can not conceive any valid reason for this exclusion, and must consider the glove-makers, the book-binder, and the barber as liable to the same influence as the other inmates of the dormitory, while the barber may have been an active agent in diffusing the infection. We fail to appreciate the necessity which seems to be so strongly impressed upon Pettenkofer's mind of entering into a prolonged discussion of the diffusion of the disease, as it affected the different classes of the inmates of this institution graded according to their occupation.

The joiners suffered more severely than any of the other occupants of the prison. They numbered 21 individuals, who furnished 11 cases of cholera and 3 cases of diarrhœa, with 11

deaths. But this heavy mortality did not fall upon them because they were joiners, or because on the 5th day of November, 1873 (page 78) they received 41 square metres of veneer from Munich; but simply because they were day and night locked up in a workshop and dormitory in which four cases of diarrhœa had occurred, two of which subsequently developed into malignant cholera. Nor is it at all astonishing that dormitory number 70, in which these joiners slept, became a cholera pest-hole, when the fact is remembered that in it slept 24 of the straw-workers, in whose workshop the potatoes infected by the leakage of the northern cess-pool were peeled—and that of these 24 straw-workers 3 had cholera, 2 choleraic diarrhœa, and 6 had diarrhœa; with two fatal cases—and that in this same room were two glove-makers, one of whom had cholera and died, the other had diarrhœa, one barber, who died of cholera' 2 tailors, one of whom had cholera, 3 spinners, two of whom had cholera and both died. Therefore of the 54 individuals who had inhabited dormitory number 70 (not 52 as stated by Pettenkofer on page 33) 17 had cholera, 2 had choleraic diarrhœa, 10 had diarrhœa, and 15 of the cholera cases died.

The same line of argument is admissible in regard to all other dormitories, but it is useless to carry the inquisition to any greater length. In spite of the sophistry of Pettenkofer the fact is evident that the cholera at Laufen did not take place until cases of simple diarrhœa had occurred, some of which may be traced to cholera-infected localities. It is also evident that the localities of the prison in which the cholera exhibited its greatest virulence were those in which the greatest number of diarrhœal cases had occurred. None of the inmates of the main building could have escaped the use of infected privies, and that fact accounts for the great diffusion of the disease throughout the building, while no argument against infection results from the fact that many individuals did not take the disease, although they were equally exposed with those who did yield to its influence.

There is nothing in this which has not been time and again explained by the advocates of the practical theory. Cholera has never yet assumed a pandemic form, or the world would have long since been depopulated.

The influence of locality is of value in this consideration only. The epidemic outbreak occurred in the main building whose three great cess-pools received the dejections of the diarrhœal cases; later cases originated in the hospital after the admission of some of these diarrhœal cases, but the military guard, which consisted of three officers and sixty-seven non-commissioned officers and privates of the First Infantry regiment, the Governor, and all the prison officials who were not obliged to live in the main building, and the occupants of the cell-house, escaped the disease. Is it not, therefore, most probable that the escape of these individuals is in great measure due to the fact that the privies used by them were not infected?

Before leaving this subject, it is but proper to note the apparent immunity which the laundry men enjoyed. There were twenty-six of these people who furnished five cases of cholera, two cases of choleraic diarrhœa, seven cases of diarrhœa, and four deaths. There is nothing strange in these statistics; still, as Pettenkofer argues that if cholera be infectious, these people should have suffered more severely, we will place in contrast with the statistics the record of precautions adopted (page 60): "The linen of those affected with the less acute types of disease was also completely separated from that of the healthy, treated first with strong lye and afterwards put in solution of carbolic acid. Bed clothes, bedstead, and linen of those who had died of cholera were rendered innocuous in the most effectual manner. Everything was consumed in an ever-burning fire in the hospital yard. The prisoner who had to keep up this fire remained well."

The influence of age, of imprisonment, of bodily state, of previous diseases, and the influence of nursing the cholera sick, are each exhaustively considered, but without throwing any new light upon the subject.

Before leaving the considerations of the epidemic in the main building, we must call attention to some conflicting statements of Pettenkofer. Upon pages 44 and 45 he calls attention to the potato-peelers, states the fact of the fluid contents of the north cess-pool leaking into the potato cellar, and remarks that some of the infected matter might have reached the potatoes.

The first case of cholera among the prisoners employed at potato peeling was on November 30th, the second on December 2d, the third on December 3d, the fourth and fifth on December 5th. It is, therefore, just to assume that prior to November 30th this leakage had occurred; but upon page 72 Pettenkofer leads us to infer that the north cess-pool did not overflow until its capacity had been overtaxed by the results of the epidemic.

On page 71 Pettenkofer states that the soldiers' privy was also used by the overseers from the main building. Upon the ground plan of the institution these privies are indicated simply as "soldiers' privies," and a study of the plans of the various floors indicates the misstatement. It is distinctly stated that the overseers are confined to the building (page 61); that even when married they are not permitted to sleep out of the building, and that on every second holiday they can spend from 1 o'clock P. M. to 10 o'clock P. M. with their families. An examination of the plan of each story will show that the rooms for overseers are all within short range of the privies, and it is rather too much for Pettenkofer to ask us to believe that the overseers from the upper stories of the building would leave the privies near at hand and descend to the yard to obey every call of nature. Again, the overseers were infected with cholera, showing four deaths, five cases of diarrhœa, and one case of choleraic diarrhœa. Now, had any of these men used the soldiers' privy, it is most probable that the guard would not have escaped the disease as they did.

If those who are impressed with Pettenkofer's remarks on page 69, as to the imperviousness of "massive walls," will read his recent lecture on House Ventilation,* they will be led to regret the inconsistency of the author who can blow hot and cold as the necessities of the case may be.

This prison at Laufen must be a fearful and wonderful institution; one which, were it to exist in America, could scarcely escape the notice of a grand jury and abolition as a nuisance. With the exception of one hour's exercise each day, the convict is confined to his workshop or dormitory, exposed to the foul

* "Popular Science Monthly," June, 1877. Relation of the Air to the House we Live in." By Dr. Max von Pettenkofer. Page 196.

emanations of three large cess-pools, which are discharged from fifty-two iron pipes into all portions of the house. We are told that a careful and thorough system of disinfection was instituted before the occurrence of the epidemic; that sulphate of iron and carbolic acid were freely used, and that all precautions were adopted; but these precautions must have been ineffectual, and the condition of the iron pipes must have been simply disgusting; for we have seen that no water was laid on upon any of the upper stories, and therefore the pipes could never have been satisfactorily flushed.

The author seems to regard the fact that the emptying of the cess-pools was accomplished without any of the nineteen individuals who were engaged in the work having been taken sick with cholera as a most conclusive argument against the existence of any specific source of infection in the fæcal contents of said cess-pools. But we are told that vast quantities of sulphate of iron and carbolic acid were thrown into these cess-pools, therefore they were in a less dangerous condition than were the fifty-five iron pipes leading to them. It must also be remembered that the cleaning of these cess-pools took place on the 17th and 18th of December, nine and ten days after the violence of the epidemic had subsided.

Many more pages might be written upon this curious book, but we think that as we have demonstrated the origin and spread of the prison outbreak, that the more minute and exhausting review may, with propriety, be abandoned.

CHOLERA AMONG THE INHABITANTS OF LAUFEN.

Twenty-two of the prison officials had residences in different portions of the town of Laufen. One of these men, named Ludw. Mildhammer, was taken with cholera December 6th, and was removed to his home in the town, where he died in the typhoid stage on the 9th. He was nursed by a poor woman named Ensmann, who, after his death, also cleansed his bedding, linen, night chair, and room.

The woman, Ensmann, lived in a narrow, dirty street, opposite to a filthy slaughter-house. She was very poor; had two children who were frequently fed upon sheeps' blood fried in rancid fat. After Mildhammer died, the woman, Ensmann,

returned to her home, taking with her a woolen garment of Mildhammer, and on the fifth day after her return the two children were taken with cholera and died. The next night the woman, Ensmann, died of cholera.

Now, Dr. von Pettenkofer is unable to see that there is any connection between these cases and those which had occurred within the prison walls. Why? Because the woman, Ensmann, was not the first taken ill. Had she only had the disease on the night of the 14th and 15th of December, and had the two children been taken ill on the night of the 15th and 16th of December, then he could understand how she might have received the poison from Mildhammer; but as it occurred, the children certainly did not nurse Mildhammer, did not wash his clothing, or clean his room and bed, therefore they could not have been infected by him; and as they were ill before their mother, they must have infected her, and therefore they must have obtained their poison from an independent focus.

There is no necessity for continuing the argument. When Dr. von Pettenkofer shall have read this review, we hope that he will correct his history of the outbreak of cholera at Laufen in 1873; but even if he will not do so, *it is of no further importance.*

MISCELLANEOUS.

"Non omnes eadem mirantur ament que."

To the American Medical Association: I hereby charge the Michigan State Medical Society with a disregard and violation of the ethics of the Association in this, to-wit: That on the 10th day of May, 1877, at the annual meeting of said Society, held at Battle Creek, Michigan, it elected Dr. Edward S. Dunster as a delegate to this Association, well knowing that he, the said Dr. Edward S. Dunster, as the Professor of Obstetrics and Diseases of Women and Children in the Medical Department of the University of Michigan, during the scholastic term for the

year 1876–1877, did aid and abet in the teaching and graduating of students in an irregular and exclusive system of medicine. For which election the said State Medical Society of Michigan has forfeited its right to representation in this American Medical Association. W. W. JONES, of Ohio.

CHICAGO, June 7, 1877.

These charges were referred to the Judicial Council, to be reported upon at Buffalo, January, 1878.

In the meantime it will be wise for members of the Michigan State Medical Society to study those charges, and to prepare to defend themselves and the Society. Important questions are at issue and must be met. E. A. C.—*Detroit Med. Jour.*

Attention, Texas Doctors.—The Texas law regulating the practice of medicine has been greatly lauded in certain quarters. Of its practical workings the "Chicago Medical Journal" of January, 1877, gives the experience of a Northern physician, graduate of Rush Medical College. This gentleman appeared before the Board of Examiners, paid the fee, $15, passed his examination, submitted his diploma for inspection. His reward came through the postoffice in the following lines: "We decline to issue to you a certificate of qualification." It is charged that the law was designed and is executed in the financial interests of the medical men in Texas, to enable them to get, keep, and control the medical practice of the State.—*Detroit Med. Jour.*

Is this correct? If not, this serious charge against the honor and justice of Texas physicians should be speedily and fully met.—E. S. G.

On Total Extirpation of a Cancerous Uterus.—In the "Allgemeine Wiener Medizinische Zeitung" for September 26, '76, Professor Hennig, of Leipzig, relates a case in which he removed the whole uterus through the vagina, on account of cancer of the cervix. The patient was forty-five years old and was suffering severe hæmorrhage. She had been twelve times pregnant, but only once went to full term. The operation was performed in the lithotomy position, the emptied bladder being drawn forward by a catheter. After separating the uterus by

the knife from its attachment to the anterior vaginal wall and the bladder, Dr. Hennig endeavored to shell it out of its peritoneal covering without opening the peritoneal cavity, an operation which he had successfully performed upon the dead subject. This did not succeed, on account of adhesions, the result of old pelvic peritonitis, but the uterus, including its peritoneal covering, was shelled out of its adventitious capsule. A knot of cancer was found to involve the recto-vaginal septum, reaching the rectal mucous membrane. In removing this, the rectum was laid open, the aperture being afterwards closed by sutures. The uterus was found to measure more than five inches in length; the left ovary and Fallopian tube, closely adherent to it, were removed with it. The hæmorrhage was checked by the insertion of ice. Some signs of peritonitis followed, and on the fifth day the temperature reached 105° F.; but, after an evacuation of the bowels through the recto-vaginal fistula, the symptoms subsided. Four weeks after the operation, the margins of the fistula were vivified, and sutures inserted, with much difficulty. Two months after the operation a swelling appeared in the right inguinal region, which proved to be an abscess, and was opened near Poupart's ligament. Six months after the operation a knot of recurrent cancers, readily bleeding, was found near the site of the fistula. This was excised. At the date of the report, eight months after the operation, the patient was in improved health, and the fistula was reduced to a small size, not allowing any solid matters to pass. —*Lond. Med. Rec.*

Bell's Method of "Visible Speech."—Dr. E. Symes Thompson says of it, in the "Medical Times and Gazette:" It has been found necessary to relinquish the system in teaching the deaf, as it introduces an element of complexity where simplicity is essential. The point the oral teacher aims at is to enable the pupil to read words from the lips, and to imitate them. It is found that if the attention is divided between the lips and signs, no progress is made with lip-reading. Again, if the alphabet is taught as a necessary preliminary to the use of words, the same needless difficulty is introduced. Still more

is this found to be the case if the pupil is obliged to learn a new alphabet (the visible speech letters), and has to translate every word into the new language before he can understand it and give it utterance. Much use is wisely made of the visible speech characters in teaching adults to overcome defective pronunciation—for instance, in the case of persons recently operated upon for "cleft palate." But, after earnest and patient trial in a school under my observation, I am satisfied that it introduced needless difficulty, and that the "German system" of articulation and lip-reading, which allows no signs, no manual alphabet, and no alphabet at all, at first, is really far better suited for the deaf than the clever method of Mr. Graham Bell.

Trigg County Medical Society.—This Society held its regular monthly meeting in the Masonic Hall, Cadiz, Ky., last Monday. The meeting was one of the most pleasant and profitable the Society has ever held. The subject discussed was Typhoid Fever. Cholera Infantum was selected as the subject for the next meeting, and the Chair appointed Dr. Bacon to open the discussion. Dr. O. B. Withers of the Southwestern Kentucky Medical Society was present, and the following members responded to roll call: Drs. Lindsay, Lackey, Kennedy, Hopson, Rogers, Bacon, Yarbrough, and Crenshaw. Society will meet at this place the first Tuesday in August at 10 o'clock A. M. J. W. CRENSHAW, Secretary.

Case of a Bearded Woman.—By Louis A. Duhring, M. D., Professor of Skin Diseases in the Hospital of the University of Pennsylvania. The first page contains a portrait of this remarkable case. "At the age of three years hair was present over the sides of the cheeks, after the manner of whiskers, a slight flaxen lanugo," and this continued to increase in quantity and length from year to year. At ten years of age the hair began to grow vigorously, and at this time hair on the upper lip first manifested itself in a notable manner. The other features of the female sex are normal. She has had two children —a boy and a girl; they show no signs of the mother's de-

formity. A careful description of her present condition is given. The family history reveals no unusual growth of hair. In summing up some especial points, the author says: "The hair of the face was a congenital condition, a certain amount of lanugo having been present at birth; and this explains, in a measure, some of the peculiarities of the case. Had the hair of the face been an acquired growth, appearing at puberty and depending upon sexual development, there would have been, no doubt, other decided masculine characters present. The increase of the hair of the scalp, axilla and pubes is also an occurrence worthy of remark. These regions were manifestly not under the same influence as that which regulated the growth of hair elsewhere. The most interesting feature is the complete absence of all signs of masculinity, either in physical structure or disposition. It is common to observe, in congenital hirsutes, that there is more or less irregularity of teeth; in this case the teeth were unusually regular. There is no reason to suppose that any hermaphroditic element exists in the constitution of the case. Menstruation was established at fourteen, and has occurred with regularity. It is concluded that all that can be done for the patient is palliative—the daily use of razor, or employment of depilatory powder. In this case, considering the extensive surface to be operated on, he would favor the use of the razor."

MEDICAL NEWS.

'Nulla dies sine linea."

There is nothing more significant in the present Turko-Russian war than the difference in the medical status and management of the two armies. While the Royal family, the noblesse, and the educated and wealthy classes in Russia place riches of almost fabulous value at the service of the hospital department, in the Turkish army it is difficult to obtain the

simplest surgical necessities. While the entire hygiene of the Russian army is, in both the field and hospital service, almost beyond criticism, filth and disease reign paramount throughout the Turkish regiments and hospitals. The best surgical apparatus and operators are seen everywhere among the Russian sick and wounded, while the status of the Turkish surgeons is incredibly low, and the use of the most ordinary instruments and apparatus is unknown.——The Suez canal is under quarantine, very much to the chagrin and disgust of those eccentric savans who attribute cholera, yellow fever, scarlet fever, and many other portable disease-poisons to the mythical agencies of malaria.——The mortality from ovariotomy in the last nine years runs from 22 to 72 per cent.; showing the wonderful difference in results logically due to the comparative skill of operators and the judicious subsequent management of the patients.——Dr. Brown-Séquard has recently given a series of lectures in Liverpool, England, in which he claims that most of the present views in regard to the physiological function and pathological changes in different parts of the brain are wrong or worthless; sincere scientists will wish that from all these pretentious claims and assertions there may come some germs of truth; *ex fumo dare lucem.*——One of the most interesting debates recently in the Paris Academy was on the important subject of tracheotomy. St. Germain, Gillette, Paulet, Després, Verneuil, Denucé, Tillaux and others gave their views interestingly and instructively; a compromise view as to the mode of operation seemed to find support; this view favors the use of the cautery or thermo-cautery in dividing the tissues down to the trachea, and then using the bistoury *a un seul temps.* ——A very positive recent contribution to minor surgery is represented by the use of muslin bags filled with saw-dust as a dressing where there is free suppuration. This simple device is well worthy of the attention of every practical physician.—— Dr. Henry Wilson, Professor of Ophthalmic Surgery in the the Royal College of Surgeons, Dublin, has been removed from the scene of his brilliant career by death.——According to the old system of weights and measures, congregations were quite accustomed to hear the familiar statement, "Neither do men

light a candle and put it under a bushel;" according to the present fashion, he who is "fully up" in advanced ideas delivers himself as follows: "Neither do men light a candle and put it under a hectoliter." This view is given for the benefit of recent graduates, who should of course run abreast with the foremost in advanced science.——Promiscuous mingling of patients suffering from every variety of disease, contagious or otherwise, is still one of the curiosities and curses of Paris hospitals. ——The renewing of prescriptions by druggists has recently been forbidden by law in Germany.——Attention is called to the change of requirements for graduation in the Kentucky School of Medicine. There must be an interval of fifteen months between the commencement of the first course and the end of the second. By entering this College or the Louisville Medical College, a student can in seventeen months enjoy the advantages of three courses of lectures instead of two; and if the expenses of going home and returning be estimated, these three courses will not cost more than two courses, board and fee expenses included. These colleges therefore come up to the highest requirements in regard to the length of the undergraduate period, and offer three courses for the same expenditure of money and time that would be necessary for two courses in other colleges.

EDITORIAL.

"Nullius addictus jurare in verba magistri."—Hor.

Association of American Medical Colleges.—As the readers of this Journal are generally aware, a permanent Association of American Medical Colleges was organized at Chicago, Ill., June 4, 1877; the Provisional Association of Medical Colleges ceasing on the same day to exist.

A year since there were many who looked upon the initiatory movement with distrust and suspicion; colleges of unquestioned prominence were not notified until the last moment; and during the sessions held there was much of special legislation un-

worthy of those who engaged in it. A year, however, wrought very material changes. It was evident that there were few colleges in this country which would not gladly and promptly join in such a movement, if satisfied that it was conducted *bonâ fide* and for the general good. Whether the suspicions originally attaching to the motives of those earliest at this work were unjust, or whether if correct these gentlemen saw reasons for mounting to a higher plane, and so responding to an evident want, it is not now material to inquire. All now wish to believe that the movement was true and laudable *ab initio*, and assuming the basis of the movement to be just as well as useful, to accept it as worthy of their coöperation and support.

The meeting of the representatives of medical colleges at Chicago was larger than was anticipated. The work done was better than was anticipated, though much that is necessary was left undone. A constitution has been created; by-laws have been framed, and articles of confederation have been signed. As the Bi-Weekly and other journals have published these, it is not deemed necessary to present them in this journal. They are judiciously and fairly drawn; the diction at times is obscure and involved, but as a whole these papers are commendable.

The articles of confederation were signed by the representatives of the following medical colleges: Jefferson Medical College, Philadelphia; College of Physicians and Surgeons, New York; Medical Department of the University of Louisville; Louisville Medical College; Hospital College of Medicine, Louisville; Chicago Medical College; Rush Medical College, Chicago; Medical Department of Iowa State University; Medical Department University of Wooster; Cleveland Medical College; Detroit Medical College; Starling Medical College; Medical Department University of Vermont; Medical Department University of Nashville and Vanderbilt Universities; Missouri Medical College; Dartmouth Medical College; Kansas City College of Physicians and Surgeons; Miami Medical College; Medical Department University of Michigan; Medical Department University of Louisiana; Indiana Medical College; Medical College of Fort Wayne; Woman's Hospital Medical College, Chicago.

Harvard Medical College, the University of Pennsylvania, the National Medical College at Washington, D. C., the Williamette University, Salem, Oregon; the Medical College of the Pacific, the Medical College of Virginia, Bellevue Hospital Medical College, the Long Island Hospital Medical College, Medical Department of the University of Georgia, the Atlanta Medical College, the Columbus Medical College have each either by letter or through their representatives, approved of this movement and expressed an intention to sustain it.

During the next year all colleges in good standing will be allowed to become members of the Association, and if not joining, will be placed on the affiliated list. Whether as members of the Association or as members of affiliated colleges, they will be required to come up to a certain standard and observe certain rules, or have their diplomas and tickets repudiated. There is every ground for believing that the chief colleges of this country will, in less than a year, be members of the Association. There is every reason why they should be, and no reason why they should not be; as inside or outside of the confederation or Association, certain rules and standards will be exacted by a Body strong enough to maintain its jurisdiction.

It is to be observed that since the adjournment of this Association, certain colleges still offer, without definite limit, Beneficiary scholarships. This is to be regretted, as such a course can, under recent resolutions, only injure themselves very seriously; inducing a repudiation of their diplomas and tickets by the chief and associated colleges of this country.

This movement offers much to the Profession. It aims to secure a longer under-graduate period and a longer lecture period. It induces students, by material advantages offered them, to attend three instead of two courses. It provides for the gradual introduction of graded courses of lectures. It requires a teaching of all the cardinal branches, and that medical teachers must be regular graduates in medicine. It abolishes the ad eundem degree and limits the honorary degree, in each college, to one yearly. It aims at a uniform standard of fees by preventing any remission of the regularly published rates. It forbids the issue of tickets until fees are paid. It forbids

the return of fees in whole or in part, this last being a very ingenious method of practically adopting low fees by high-fee colleges. It forbids the taking of notes, a very popular device for taking students from other Institutions, and for measuring the numerical strength of a class. It seeks to promote harmony and good feeling, and to prevent bickering and abuse. It destroys the stock in trade of those medical journals which, finding reputation beyond their reach, seek notoriety by fictitious discoveries of factitious motes in their brothers' eyes, while oblivious of the beam in their own.

The Association is thus briefly described; its history; objects; hopes; and results. It is worthy of the support of all medical colleges, and can not fail to win the support of the Profession.

The American Medical Association.—The Proceedings of this Body will be found in another department of the Journal. While there was nothing brilliant heard or seen, it was an average meeting in debates and papers, and the attendance was larger than usual. The President, Dr. Bowditch, made some very excellent suggestions in his address, but they were not adopted. There is no evidence of progress or improvement. The only positive step towards improvement in recent years was the establishment of the Judicial Council; in theory it was an excellent movement; in practice this sub-Body has made many sad blunders; it at least acts as an escape valve for all the disputes and contentions which in former years disgraced the Association. Now all such questions are referred to the Judicial Council, and their decision is final. It does not at least decide as badly or as blunderingly as the Association did of yore, but it has its own sins to answer for, and is only prospectively as yet admired.

The Association is not a scientific Body. Its Transactions are not inferior to those of many State Societies; the volume is filled with trash, which not only burdens the issue, but conceals the few genuine grains from the harvest field. Again the advice is given; send all papers not the embodiments of original research to the Journals, and publish in the Transactions only the results of original investigation. If this be done, the

Transactions will at last become valuable; will become saleable and creditable, and the proceeds of such sales will form a fund to be furnished to original investigators for the prosecution of their valuable work. The representation is so large as to make the Body unwieldy; cut it down; one for every one hundred in every medical Society; and where a Society has less than one hundred members allow it one representative. As it is, credentials "go a begging," and no one cares to receive them. With a small Body made up of prominent men; with a volume of Transactions embodying the results of original research; and with all questions of ethics, etc., sent to the Judicial Council, the Association can become something. So far, it is all as a rule *vox, et præterea nihil.*

Some may say that this is not the road to office; *iter ad astra*; granted, but the writer seeks something far higher than this; something far higher than the Association has ever conferred or can confer, the position of an independent medical Journalist; striving after the truth, and prompt to publish this, without favor.

The Sims, Thomas, Peaslee and Emmet Matter.—In the last number of this Journal attention was called to the fact that Drs. Peaslee, Thomas and Emmet had published a circular denunciatory of Dr. Sims. This circular has been met by a pamphlet from Dr. Sims. In this he demonstrates that he resigned his staff position in the Woman's Hospital because he did not believe he could properly retain it. He claims that his colleagues, while ostensibly endeavoring to prevent the acceptance of his resignation, were secretly trying to secure it. He shows that his statistics of mortality were the best in the Hospital, and that to be stigmatized, as he was by his colleagues, to the Directors, for being a reckless operator, etc., was not only ungenerous and discreditable, but that the charges alleged against him by them were untrue, etc., etc.

As this pamphlet is to be answered, it is said, by Drs. Peaslee, Emmet and Thomas, all further comments will be reserved until the testimony "is all in." Then the case will be given to the Jury.

RICHMOND AND LOUISVILLE

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ORIGINAL COMMUNICATIONS.

"Qui docet discit."

ART. I.—*Diseases of the General Organism in their Relation to Vision.* By GEORGE REULING, M. D., Surgeon in Charge of the Maryland Eye and Ear Institute, Baltimore, Md.

As early as the year 1817, Dr. Loebenstein-Loebel, proceeding from the theory that general diseases of the organism may be reflected and depicted in the special diseases of the eye, created a so-called ophthalmological semiology. The proper and intimate relation which exists between ophthalmology and internal medicine was, however, not clearly defined in his time; in fact, *his* being a pre-ophthalmoscopic age, it could only be conjectured. Professor Foerster, of Breslau, is the first who has made the attempt to explain this correspondence by a rational treatise founded upon the laws of modern science.

It would consume too much space to consider the various divisions of his exceedingly interesting monograph, published in the Hand-Book of Ophthalmology of Graefe and Taemisch (vii, i, pp. 59 to 234, 1876), and it is my intention to devote the greater part of this paper to the relationship existing between diseases of the nervous system and disordered conditions of the ocular apparatus.

Foerster divides his monograph into the following nine captions; i. e., morbid changes which take place in or about the eye in—

(1) Diseases of the organs of respiration and circulation;
(2) Diseases of the digestive apparatus;
(3) Of the urinary apparatus;
(4) Of the generative apparatus;
(5) Of the nervous system;*
(6) Skin affections;
(7) Gout and rheumatism;
(8) Acute and chronic infectious diseases;
(9) Certain constitutional diseases and disturbances of general nutrition.

I. Morbid changes which affect the organ of vision in diseases of the respiratory and circulatory apparatus are produced in the first case by the continuity of tissue—the process passing from the mucous membrane of the respiratory tract on to the conjunctiva (as mucocele or blenorrhœa of the sac ensuing upon recurrent coryza); in the second case in consequence of venous stasis (as extravasation of blood into the conjunctiva in tussis convulsiva, after attacks of vomiting, after a nocturnal epileptic attack). Emphysema, hypertrophy of the left ventricle, atherosis of the arteries, fatty cardiac hypertrophy, and progressive pernicious anæmia may cause recurring retinal hæmorrhages. Insufficiency of the valves of the aorta produces acceleration of the retinal arterial pulse. Endocarditis and valvular troubles may produce embolism of the central artery of the retina. Acute miliary tuberculosis, when generally diffused, may produce miliary tubercles of the choroid.

II. The relations of diseases of the digestive organs to the organ of vision are based upon reflex action, alteration in the interchange of blood, and plethora abdominalis. After profuse hematemesis, blindness occasionally sets in with white atrophy of the optic nerves. In plethora abdominalis the range of accommodation is often narrowed; Kissingen, Karlsbad, or Marienbad waters often produce remarkably beneficial results. Intestinal worms may call forth mydriasis. Icterus manifests itself on the conjunctiva, and occasionally calls forth retinal apoplexies. In leucæmia, the ophthalmoscope reveals orange-colored

* I shall give a brief synopsis of the above various headings, reserving the fifth for fuller description.

fundus with dilated retinal veins of pinkish color, blood extravasations and lymphomata or yellowish-white spots.

III. Relations of the urinary apparatus to sight. In this connection, Bright's disease deserves preëminent mention. In protracted albuminuria the accommodative power is lessened. Retinitis albuminurica is also met with in nephritis scarlatinosa, puerperalis, and in amyloid degeneration of the kidneys. Among 157 cases, Wagner discovered morbus Brightii ten times in connection with retinitis albuminurica.

IV. In consequence of affections of generative apparatus morbid changes in the organ of vision are met with in the great majority of cases among women. Following contraction and shrinkage of the cellular tissue surrounding the uterus and which is copiously supplied with nerves, reflex hyperæsthesia of the fifth and optic nerve ensues, which condition Foerster calls *kopiopia hysterica.* The patients complain of pain when they apply their eyes for any length of time to near work (asthenopia); they also suffer with photophobic symptoms. There are no appearances presented by the ophthalmoscope. The affection is improved to a slight degree by castoreum and valeriana, and is entirely removed after perfected involution. Morbus Basedowii may also be dependent upon this class of diseases.

VI. Eczema and impetigo of the face produce conjunctivitis catarrhalis and keratitis superficialis, especially in the case of scrofulous children. The formation of cataract is dependent upon certain exanthematous affections. Facial erysipelas may produce atrophy of the optic nerve with contraction of the central artery; it may also give rise to abscess of the lid.

VII. *Gout and rheumatism.* Iritis rheumatica and keratitis diffusa.

VIII. *Infectious diseases.* The conjunctivitis which occurs in measles is intense; in the incipient stage this symptom is of diagnostic value. Amaurotic conditions, permanent or transient, are exceedingly rare after measles, but *may* occur; chronic ophthalmias are, however, exceedingly common sequelæ. In scarlet fever, catarrh and swelling of the conjunctival tissue is also a concomitant symptom. Transitory amauroses, without ophthalmoscopic appearances after scarlatina, are dependent upon

albuminuria. Retinitis albuminurica after scarlet fever admits of quite a favorable prognosis. Scarlet fever may induce caries of the petrous bone, paralysis of the facial nerve, lagophthalmus and suppuration of the cornea.

Variola causes a large percentage of blindness, and, prior to the discovery of vaccination, thirty-five per cent. of all cases of blindness occurring in France were produced, in the beginning of this century, by this cause alone. In variola, the conjunctiva becomes affected, causing catarrh and chemosis, and the extravasations of blood which take place into it are characteristic of the hæmorrhagic form of the disease.

Diphtheria may affect the lids, producing an especial eye disease.

After typhoid, corneal abscess and paralytic affections of the eye muscles are very rare; by far more common are transitory amauroses without ophthalmoscopic appearances in the case of children, and permanent atrophic conditions of the optic nerves.

After *febris recurrens*, choroiditis, cyclitis or iritis are not uncommon. A few weeks after diphtheritis, paralysis of the accommodation is of quite frequent occurrence, without, however, as a general thing, affecting the activity of the pupil and the other eye muscles; the prognosis is also favorable.

Intermittent fever produces typical neuralgias, particularly of the supra-orbital nerve.

Cholera may call forth lagophthalmus, lessened secretion of tears, injection of the lower segment of the bulbar conjunctiva, desiccation of lower half of cornea, black spots in sclerotic. The retinal arteries become narrower, and sluggishness and venous stasis ensue.

Trichinosis produces œdema of the conjunctiva and of skin of the lids.

Meningitis suppurativa may produce one-sided or bilateral protrusion of the eyeball with œdema.

Pyæmia sometimes induces suppurative choroiditis.

Endocarditis may produce pluggling up of the retinal arteries, due to coägula loosening themselves from the endocardium.

Syphilis may affect nearly all portions of the eye. Coccius has shown that of 7,898 eye cases which came under his care,

eleven per cent. had luës. The affections are generally binocular. The iris is frequently diseased, and it is not rare for the retina to become affected. Gummata, or syphilitic ulcers, may be met with on the margin of the lids and on the conjunctiva. Keratitis punctata and keratitis diffusa are very frequently dependent on luës, also due to congenital syphilis. Fifty per cent. of cases of iritis are of syphilitic origin. Paralysis of eye muscles is not infrequently owing to luës.

As an occasional consequence of lead poisoning, neuritis optica and atrophy of the optic nerve may be mentioned.

Amblyopia with central scotoma takes place in nicotine poisoning, and is especially noticeable when the patient looks upon red surfaces.

Chronic alcoholism can produce atrophy of the optic nerve. Here, the amblyopia is similar to that due to nicotine poison.

IX. Scrofula produces blepharitis, conjunctivitis, phlyctenular keratitis, or phlyctenular conjunctivitis, superficial keratitis.

Diabetes very frequently produces eye troubles, loss or great impairment of the power of accommodation, cataract, vitreous opacity, retinitis with hæmorrhagic and whitish plaques of exudation, atrophy of the optic nerve, and amblyopia without ophthalmoscopic appearances.

Having thus glanced at the various headings into which the valuable essay of Foerster is divided, I shall now pass into closer review the relations existing between nervous diseases and affections of the apparatus of vision. These are very numerous. This is readily explained by the fact that the optic nerve and the retina are in reality portions of the brain. Besides the optic nerve, five cranial nerves supply the eye and its appendages—the oculomotorius, the trochlearis, the abducens, trigeminus and facialis; the first three of which pertain solely and alone to the organ of sight. But, moreover, the arterial, venous, and lymphatic systems of the eye are in direct communication with those of the brain; the union existing between the eye and the intra-cranial mass is thereby made much more intimate.

By means of the sympathetic, the eyes are connected with the spinal cord, which fact renders them quite frequently of great diagnostic value in spinal diseases.

In consequence of the intimate union existing between the eye and the brain, it was thought that cerebral congestion might be discovered in every case by means of the ophthalmoscope and diagnosticated beyond the shadow of a doubt. Observation has, however, not substantiated this supposition.

Injected conjunctiva, however, and contracted pupils are often the prodroma of those cases of, especially, infantile convulsions which, because of their generally non-dangerous character, are looked upon as the result of transitory cerebral hyperæmia. These convulsions are accompanied, in a great majority of the cases, by upward or sideward motions of the eyeballs.

Those cases of transitory paralysis of the muscles of the eye which are met with in cases of obstinate constipation (pressure of the distended intestine upon the aorta ?), may also be looked upon as symptoms of cerebral congestion.

The affections which befall the organ of vision in cerebro-spinal meningitis, according to Schwalbe, are not owing to metastasis, but have their origin in the direct spread and transferring of the process. In this manner purulent meningitis, by passing through the optic foramen, may enter the sheath of the optic nerve and cause choroiditis, iridochoroiditis, retinitis, and hyalitis.

In cases of epidemic cerebro-spinal meningitis, especially when exanthematous affections of the face (herpes, erythema) make their appearance, catarrh of the conjunctiva may immediately set in, which is to be considered as an expression of the exanthematous process.

Meningitis may also cause transitory or permanent amblyopia and amaurosis through participation of the nerve and chiasma. Chemosis and infiltration of the orbital cellular tissue are met with in acute meningitis.

By far the greater number of those who lose their sight in consequence of meningitis are children, during the first five years of life. After the cerebral affection has run its course—at which time the oculist generally sees the case—the eyeballs are somewhat softened, the orbital tissue lessened, cornea clear, pupillary margin usually adherent, iris bulged forward in the

centre, and through the lens whitish or yellowish masses are seen, which fill up the posterior portion of the eyes. Vision is totally gone.

Leyden remarks ("Virchow's Archives," 29, p. 199) that in cases of acute meningitis, the diagnosis of which is very often difficult, chemosis of the conjunctiva, which is one of the first symptoms, may occasionally be of the greatest diagnostic significance.

Increased intra-cranial pressure manifests itself, as a general thing, in the eye. Tumors of the brain of whatever kind, hydrops ventriculorum, echinococcus, abscesses, hæmorrhages, softenings, meningitis cerebro-spinalis, tuberculous meningitis, diffused encephalitis of the ganglia and convolutions; all these may give rise to important changes in the papilla of the optic nerve, of the retina and its vessels.

This increased pressure manifests itself by neuritis optica, or by engorged papilla. Taken by itself, the symptom found by the ophthalmoscope is not conclusive either as regards the nature of the disease, whether tumor, inflammation, etc., or, indeed, as to its seat; in connection with the rest of the cerebral symptoms, however, it is of the utmost importance.

The cause of *engorged papilla* is to be sought (according to experiments of Manz and v. Schwalbe) in the fact that the space between the inner and outer optic-nerve sheath, the subvaginal space may become filled from the subdural space, and the injected fluid may pass forward to the optic nerve entrance. If the subvaginal space is filled with fluid—the hydrops vaginæ optici of Manz—compression of the optic nerve and its vessels (especially the veins) ensues, and consequently a stasis of the venous blood of the retina and an engorgement and swelling of the optic papilla and the neighboring portion of the retina will take place. It is thus that the *engorged papilla* is to be accounted for.

Engorged papilla in both eyes—the affection is usually bilateral—therefore signifies that there is an increased pressure in the subdural space, consequent upon which there has been transudation of the arachnoid fluid into the subvaginal space.

Annuske, basing his remarks upon a copious literature and

numerous experiments, says that *engorged papilla* is met with, with but slight exceptions, as the constant companion of cerebral tumors, and that, consequently, this occupies the foremost position among all the other symptoms which point to intracranial neoplasms. Hughling Jackson's tables are interesting in this particular. Among twenty-three cases of *engorged papilla* he found seventeen cases of tumor, three of abscess, two of hæmorrhages, and one of softening.

In case—as it often happens—an *ophthalmoscopic* examination does not enable us to comprehend the nature of the intracranial affection, an exact topographical localization of the visual fields often leads to a correct diagnosis of the seat of the trouble.

As early as 1856, von Graefe drew the attention of ophthalmologists to the fact that in case of cerebral apoplexy with hæmiplegia, either the right or the left half of both visual fields are at times defective. Since then very numerous experiments have been made and have developed certain typical forms of defect which befall the visual fields of cerebral sufferers. In the light of these experiments it is necessary to look at each visual field as made up of two parts, of which each, at least in a portion of its extent, sends the received impressions to the brain. The right half of each visual field is supplied by the left optic tract, the left half by the right optic tract. In the chiasma a semi-decussation of the nerve fibres takes place.

When one optic tract is paralyzed, a condition is produced more calamitous than if the afflicted individual had only one eye. Despite his two eyes, such a person is really possessed, for any practical purpose, of only half of one, because his visual field is broken off, so to say, at the point of fixation.

How may the visual field be affected?

(1) In each visual field the lateral half may be wanting—medial hemiopia or lateral hemianopia.

(2) In each visual field the right half or the left half may be wanting. This condition is called homonymous hemiopia.

Medial hemiopia develops gradually in the majority of cases, and the two portions of the visual fields—the affected part and that which is intact—are often not divided by a sharply defined

line of demarcation, but rather by an area of uncertain sensation.

Medial hemiopia can become progressive in so far as that the affection may extend into the medial half of one eye. If the process progresses after this manner the prognosis regarding the other eye also becomes bad. All this points to a morbid process, slowly progressive in its nature, situated at the anterior or posterior margin of the chiasma, originating, perhaps, from the *hypophisis cerebri*, and affecting, at first, the central portion of the chiasma, then one side of it, but finally the entire chiasma, destroying it entirely.

More frequent than the condition just considered is *homonymous* hemiopia. Among thirty cases of hemiopia observed by Foerster, twenty-three fell under this heading, and only seven were *medial*. *Homonymous hemiopia* is usually sudden in its origin, and appears occasionally in cerebral apoplexy; consequent thereupon there occur paretic affections of the upper extremities, of the facial nerves, as well as perhaps of the whole side of the body corresponding to the visual defect. If the right halves of the visual fields are defective, aphasia may be also present. In the defective sides there is generally not a trace of vision left. If, however, which is exceptionally the case, a portion of the paralyzed half of one visual field preserves some sensation, however small this portion may be, there will always be found corresponding therewith an identical sensitive portion in the paralyzed half of the second visual field.

The line of demarcation between the part bereft of sensation and that which is sensitive is, with few exceptions, sharply defined, and passes from above downwards through the point of fixation or in its close vicinity. The affection is always stationary, never progressive. The prognosis, as regards the extension of the amaurotic condition to the other half, is therefore good; it is bad as regards the restitution of vision and health.

The symptom of *homonymous* hemiopia points to a morbid process, situated along the optic tract between its central origin and the chiasma.

The appearance of phosphenes (glimmering scotomata or

amaurosis partialis fugax) is closely allied to amblyopia with identical defects, and deserves mention in this place, depending, as it does, upon some cerebral disturbance; it is accompanied by nausea, loss or impairment of memory, difficulty of speech, and other kindred symptoms.

These defects are always met with in both eyes, and always in identical localities. They make their appearance previous to the glimmer, and persist for a time after this has passed. This glimmer, or these phosphenes, may be very marked, or scarcely at all so, or it may even be altogether absent in one eye during some time, whilst it is present in the other. The entire array of symptoms is over in fifteen to twenty-five minutes. The affection begins in this manner: A defect appears in both visual fields, which is situated laterally from the point of fixation. This defect is at first not recognized by patients, unless their attention is especially directed thereto. Although they do not, as a general thing, recognize the defect, they however perceive from the very beginning that their vision is disturbed in some unaccountable way. After the lapse of a few minutes, the defect enlarges in both fields, without, however, enclosing the point of fixation, and it is now that the peculiar symptom of "glimmer" sets in, engaging the attention of the patient. The glimmer consists in an appearance of light and in a trembling, quivering, zigzag motion, and its point of attachment is a semilunar zone, the concavity of which is turned towards the defect. Between the defect and this zone a region may exist in which objects may be distinctly seen. Sometimes, however, the defect is so large that it occupies on one side the homonymous halves of the fields of vision, and that consequently perfect hemiopia is produced.

The symptom of the "glimmering" points to an affection situated in one optic tract, or where both tracts unite in the centre.

The muscles of the eye indicate cerebral affection in quite a large majority of cases. The oculomotorii, trochleares, abducentes, and faciales originate from the floor of the fourth ventricle. If, in the region supplied by one or more of these nerves, disturbances take place simultaneously with the other

symptoms, it is very probable that the morbid process is localized in the fourth ventricle.

The anterior corpora quadrigemina are especially important respecting the associated movements of both eyeballs. The right anterior corpus quadrigeminum regulates the movements of both eyeballs towards the left side; the left those of both eyes towards the right side. If the portions of the corpora quadrigemina in question are irritated, the head will turn towards the same side as the eyes. Upon a deep incision into the median line between the two corpora quadrigemina, the motion is restricted to the eye of the side which has been irritated. Irritation of the middle portion, situated between both corpora quadrigemina causes upward motions and *ad maximum* dilatation of the pupils. If the most posterior portion of one or the other corpus quadrigeminum is irritated great convergence ensues, and the axes directed downwards, together with contraction of the pupils. Upon irritating the floor of the aqueduct of Sylvius, the eyes are turned towards the nose. (The above symptoms were produced by experiments of Adamück made in 1869 upon dogs and cats in the physiological laboratory at Utrecht.)

Accordingly, when, as is not rarely the case, both eyes are permanently constrained in their motions to the right or to the left, generally associated with impaired mobility upward or downward, the presence of a morbid process at one of the anterior corpora quadrigemina might be accepted with some plausibility.

Moreover, in cases of apoplexy, both eyes and the head are moved to one side. If the cerebrum is affected by a tumor or other morbid process, the eyes and the head are directed to the side upon which the cerebral affection is situated.

If the process lies in the *isthmus encephali*, the motion may take place to the opposite side and continue for some time.

Sometimes, too, the patients will persistently lie upon that side to which the eyes are directed. If the body participates in this forced position, which the patients assume, however often their posture is changed, then the seat of the cerebral trouble is, presumably, on the opposite side to position assumed.

If, however, the body does not participate in the forced position, the central trouble is situated on the side towards which the eyes and head are directed.

In partial hardening of the brain almost the only higher sense affected is that of vision. Ophthalmoscopic examinations have shown atrophy of the optic nerve in some instances. Much more important, however, as regards the diagnosis is the state of the eye muscles, more especially a condition very similar to nystagmus; a condition, moreover, very like the tremulousness of the extremities produced whenever these are moved, although it is not perceived when they are undisturbed. This nystagmus, which takes place in only about one-half the cases, is to be looked upon as a paresis; that it is a paralytic affection is proven by the fact that in connection therewith ptosis is not uncommonly encountered, as well as mydriasis, and at times even perfect immobility of both bulbi. Leube, in a case of perfect immobility of both eyeballs, found that both oculomotorii were transformed into dense, gray cords; the abducentes were flabby and had turned gray.

Dipoplia is an initial symptom which most commonly vanishes altogether. Amblyopia is a symptom of cerebro-spinal sclerosis which is more permanent and frequent, but which does not ordinarily lead to blindness. If the base of the brain is the seat of the morbid process, paralytic conditions of the eye nerves ensue; successive total paralysis of two or three nerves are especially characteristic. On the other hand, multiple and imperfect paralysis rather point to an affection of the brain substance itself.

In patients suffering with brain affections, the pupils are often of a different size. Among one hundred and forty-six such patients, Castiglioni only met with thirty-six in whom the pupils were of a normal size. This proportion, however, is set at too high a figure. Associated with this symptom, disturbance of innervation in the area supplied by the facial nerve or the hypoglossus is often encountered; that is, there is relaxation of one side of the face, drawing up of the corner of the mouth, turning to one side of the point of the tongue, and so on. Of equal significance as the uneven size of the pupils is bilateral mydriasis or bilateral myosis. A very peculiar pro-

dromic symptom of cerebral disease (paralysis, insanity) has been met with. It consists in the alternate contraction and dilatation of the same pupil at different times, independent of the influence of light, or the right pupil may be large on one occasion and then the left, or vice versa, the change taking place at comparatively short intervals.

Among forty-three cases of epilepsy with insanity, Albutt (on the use of the ophthalmoscope) found fifteen cases of clearly expressed changes in the optic nerve; nine cases in which these changes were not so apparent, and nineteen in which the nerve seemed normal. The changes consisted, with the exception of white atrophy, which in some instances had proceeded from neuritis, only exceptionally in distinct neuritis, for the most part only in hyperæmia of the optic disk together with indistinct margins.

In mania Albutt found among fifty-one cases a condition in twenty-five which pointed to intra-cranial disease. In thirteen the appearances presented were not well defined; in the remaining thirteen there were no ophthalmoscopic changes. His conclusions are: Symptomatic changes in the eyes are very often met with in mania, and the number would be greater if purely functional cases were excluded, as erotomania, hysteria, transient mania, etc. During the maniacalic attack the optic disk is anæmic (in consequence of vascular spasm?). In all cases of mania, if the fundus be examined within a few days of the attack, this will appear strongly congested; this congestion is so marked after severe attacks that the disk may be completely hidden from view. The permanent consequent changes consist either in stasis with resulting atrophy or softening which terminates in simple atrophy; or the changes assume a mixed nature.

Albutt found in thirty-eight cases of dementia without epilepsy, twenty-three affections of the nerve or retina. In melancholia the retina was very often found to be anæmic. In idiotism five cases out of twelve were found to have atrophy of the optic nerve. Of fifty-three cases of paralysis occurring in the insane only five presented normal ophthalmoscopic appearances; forty-one showed atrophy of the optic nerve.

In tabes dorsalis, atrophy of the optic nerve is often the in-

itiatory symptom. Leber (Arch. f. Ophthalm. XV, p. 33) states that among eighty-seven cases of atrophy of the optic nerve, tabes was present twenty-three times, or, at any rate, there were spinal symptoms; that is to say, in twenty-six per cent. of all the cases. Other ophthalmologists assume even a higher percentage.

Besides the *optic* nerve, the nerves supplying the eye muscles may be affected in tabes. Slight paralytic affections of these latter are not uncommon, especially in the beginning of the disease. These may, however, be so slightly affected, that the dipoplia is the only symptom which serves as a diagnosis.

Ptosis also occurs. These paretic affections do not, as a general thing, reach a great height, even in the later stages of the trouble; they are, however, subject to relapses.

In tabes the pupils are generally smaller than is normally the case, unevenly dilated and sluggish. These appearances are to be explained by irritation of the *centrum cilio-spinale* of Budge, which is situated in the vicinity of the first dorsal or last cervical vertebra.

As a means of diagnosis in morbid affections of the cervical portion of the sympathetic, the condition of the pupils is of great significance. *Irritation* of the cervical portion of the sympathetic, in consequence of struma (inflammatory swellings), produces dilatation of the pupil.

Paralysis of the cervical part of the sympathetic (lympho-sarcoma, epithelioma, and so forth) calls forth contraction (myosis) of the pupil. In connection herewith, slight ptosis is often met with, owing to affection of the muscular fibres of the lids which are supplied by the sympathetic.

Hemicrania is now generally looked upon as an affection of the sympathetic—i. e., as a vasomotoric neurosis.

There exists a hemicrania sympathico-tonica with lessening of the calibre of the temporal artery and dilatation of the pupil, and a hemicrania angio-paralytica with dilatation of the retinal vessels and contraction of the pupil.

Diseased conditions of the fifth nerve (trigeminus) may manifest themselves in the eye in *ophthalmia neuro-paralytica* and in *herpes zoster ophthalmicus*. *Herpes zoster ophthalmicus*

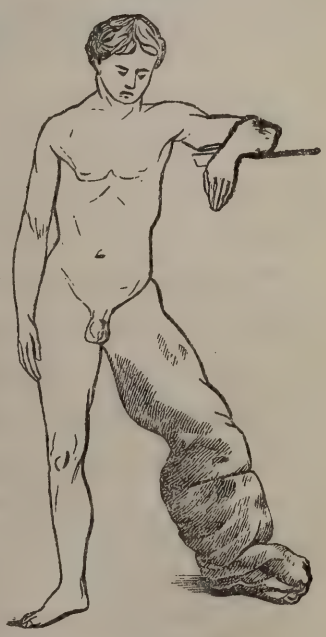
joints retained as much flexibility as the enormous increase of substance surrounding them would admit; motion was painless. The cut (figure 9) exhibits on the outer aspect of the limb the lobules separated by the furrows.

Autopsy.—Hypertrophy confined to skin and fat tissue; muscles slender and pale; bones and joints unaffected; arteries not enlarged; no change in the inguinal or pelvic glands detected. The cutaneous papillæ on the foot were enlarged and elongated into pendulous cones rounded at the end, each being supplied with an artery which terminated "in villi upon its surface."

The development involved the greater part of the thigh and the entire leg and foot. It followed an inflammatory process; was attended with a "copious and exhaustive transudation of serous fluid from the surface of the hypertrophied part," and it is probable that the fat masses were interspersed with minute inter-communicating cavities filled with similar fluid.

Somewhat similar, though less extensive, was the "enlargement of the left lower extremity," in the following case, figure 10.

Fig. 10.



Case III.*—A young man aged 25. The limb measured below the knee two feet nine inches in circumference; had attained its size very slowly and gradually, unattended with any pain or inflammation of the skin, the subjacent adipose tissue, or of the inguinal glands. The swelling involved the lower half of the thigh, leg and foot; on the foot, as in Chevalier's case, it overhung the toes. Below the knee the enlargement was divided into lobes by deep fissures. On the thigh, above the swelling, the skin was loose and flabby; below it was thickened and scaly; in the fissures the cuticle was very thin and the skin reddish and constantly moistened with fluid, great quantities of which were discharged. Both the knee and ankle-joints retained their flexibility. He could walk and run. Non-congenital.

* R. J. Graves, Dub. Hosp. Rep. vol. iv, p. 521, 1827.

CASE IV.*—A. C., aged 52. In her sixth year suffered from ophthalmia, from twelfth to fourteenth year from spondilitis lumbalis, resulting in kyphosis of lumbar vertebra, unaccompanied by paralysis. In her nineteenth year the affection of the left leg began, with violent burning pains night and day, followed soon by the appearance on the skin of the foot and leg of closely arranged, translucent vesicles, not larger than filberts, and hemispherical, which disappeared without rupture, leaving white spots. From this time the leg began to enlarge, and from several cracks in the skin a large quantity of a clear serous fluid exuded. These openings closed in six weeks, and subsequently the integument of the leg was repeatedly attacked with an erysipelatous inflammation, attended with rigors and loss of appetite. After each of these attacks the leg became larger, nodular projecting tumors and deep transverse sulci formed. Later a large abscess formed on the anterior surface of the leg, which opened spontaneously and discharged a large amount of black, stinking blood and pus, and then the thigh began to enlarge. Four years after, at the time of the ligation of the femoral artery, the measurements of the circumferences were as follows, in centimetres:

	Right.	*Left.*	*After Ligation.*
Foot at base of toes	24	25	23
Middle of foot	22½	30½	26
Around malleoli	23½	32½	27½
Middle of leg	31	45½	33
Knee	33	47½	34
Middle of thigh	47	54½	40

This reduction had been gained in six months, and remained the same four years afterward, in 1874.

CASE V.—J. P.,† aged twenty-eight. With the exception of an attack of typhus fever in his twentieth year, had enjoyed good health until six months previous to admission to clinic, when he had accidentally cut the sole of his foot, which apparently healed without trouble, but was followed in two weeks

* Kappeler, Chirurg. Beobacht. aus dem Kantonspital Münsterlingen, p. 260, 1865, 1870.

† Prof. A. Bryk, in Cracow, Oester. Zeitschr. für Pract. Heilkunde, vol. xv, No. xi, p. 325. For the opportunity of examining the reports of Prof. Bryk, I am indebted to Dr. Jacobi, of New York, who kindly placed at my disposal the number of the journal above referred to.

by a painful abscess, and afterward by a fever which lasted several weeks. Then the leg began to swell, and numerous abscesses formed on the dorsum of the foot and leg, which healed slowly. Four years after, the affected parts had reached the enormous size shown in figure 11, and appeared like a truncated cone, composed of three tumors, the upper one resting upon a deep furrow encircling the ankle-joint, another surrounding the heel like a horse-shoe, and a third arching across the tarsus and extending to the toes. In the horizontal posture the tumors became softened and flaccid; when erect they became hard and tense. The inguinal glands were swollen and hard, and a systolic murmur could be heard in both extremities from the inguinal fold to the apex of the inguinal triangle.

Fig. 11.

Anatomical Examination of the Amputated Limb.—The superficial and deep veins, which communicated by numerous branches, were dilated; the saphena by varices of walnut size, and in the territory of the tumors by larger sacs filled with dry plugs adherent to the walls. The walls of the larger veins were thickened; did not collapse on section. The nerves were thickened; the neurolemma injected.

The hyperplastic integument was thickened, covered with a bristly epidermis, and when incised discharged copiously a clear fluid, which, after standing loosely, coägulated. The upper tumor posteriorly was abundantly supplied with fat; anteriorly it was mostly composed, as were the other tumors, of a white tendinous callous tissue, which fused with a thickened and vascular periosteum. The tibia anteriorly was covered with osteophytes; its cavity was mostly ossified and filled with a reddish marrow. The hair follicles and sebaceous glands were atrophied; the latter everywhere were filled with cells undergoing fatty degeneration. The sudoriferous glands were in sparse groups and atrophied.

The single fat lobes of the calf-tumor were surrounded by a fibrous capsule, which sent processes between the smaller lobes and spread between the single fat cells in the form of a regular network of anastomosing nucleated spindle cells, in the meshes of which the fat cells could be recognized. With increasing density of the connective tissue the fat contents of the mesh-cavities decreased and the fat cells became smaller. All the transitions from the soft fat lobules to the sclerotic fibroma—only containing fibrous trabecular tissue, but always preserving the areolar character—could be traced.

Fig. 12.

The lymph vessels were very numerous, dilated, and formed nets with mesh spaces. The vascular periosteum was attached to the bone by an osteoid layer. The bone in places was hardened.

Case VI.—A fœtus,* between the fourth and fifth month, weighing two hundred and fifty grammes, and measuring in length eighteen and one-fourth c. m., and around the thorax fourteen. The tumor, as represented in fig. 12, occupies the entire vault of the cranium and parts of the face and neck, extending like a cape from the edge of the scapulæ across the neck, over the vault on both sides as far as the root of the nose. Below the superciliary ridge it extended in a curved arch to the corners of the mouth and to the chin. At the edges of the scapulæ and on the neck and sinciput it could be raised from the subjacent tissues. By furrows it was divided into a frontal, temporal, facial, and neck lobe. In the furrow separating the neck and facial lobes the ears can be seen unconnected with the tumor. Along the saggital suture a furrow separates it into symmetrical halves. No other abnormities, excepting thickened lips, and a thickened, soft integument, marked by numerous rugæ and folds, were discovered. The cra-

* H. Steinwirker, Dis. Inaug., Halle, 1872.

nial lobes were firmly attached to the bones, and the frontal and cheek lobes were softer than the neck lobes. The tumor mass was thickly interspersed with minute caverns, and had its origin in the cutis, and subcutaneous tissue, and consisted mostly of connective tissue of varying density, rich in cells and abundantly supplied with vessels. The cells were principally the spindle and stellate forms. The fibres of the basic substance were curiously and variously interwoven, forming irregular fissures. These and the caverns were lined with endothelium, and either empty or filled with a coägulum enclosing lymph corpuscles. The blood vessels were very numerous, interrupted with frequent varicosities and densely filled with discolored, brownish-yellow discs.

The following analagous case, reported by Meckel,* exhibits a different arrangement of the masses, and caverns of pea size and larger:

Case VII.—A six months' fœtus,† male. Entire head covered with a fleshy, spongy lump, which extended anteriorly, hiding the face, down to the chest, and stood out in sharp outline from the latter. The integument of the face, ears, extreme points of the fingers and toes, was fine and smooth; the rest of the skin showed gelatinous softening and augmentation of substance, and was interspersed with numerous caverns, some collapsed and others filled with lymph. At the points of the fingers and toes the transition of normal to abnormal integument was imperceptible; at the face, however, it was bounded by a fold-like reflexion. The line of demarcation passed over the lower part of the forehead down to the ear, then closely behind the latter downward and forward to the lower edge of lower maxilla, and around the mouth. At all these points the delicate integument suddenly passed into the enormous mask-like integument. The largest sac-like tumors were over the cerebral portion of the head and in the lumbar region. The skeleton was regular in form; bones, however, thin and cartilaginous.

The firm, painless, non-compressible and non-fluctuating

* Archiv f. Anat. and Physiol., 1828, p. 149.

† Cited by Steinwirker, Dis. Inaug., Halle, 1872.

masses, separated by furrows in the integument, which mark the flexures of the skin and the ordinary form of development of the panniculus adiposus in the thigh of the newly-born, are mainly composed of fatty and connective tissues. The formation of these fatty enlargements into lobules, masses, or folds, not unlike, objectively, lipomatous developments, is in a measure due to that peculiar and normal anatomical arrangement and structure of the connective tissue of the skin which at the natural flexures and furrows is either directly connected with the superficial fascia, or there is at such places but very partial formation of the panniculus; and consequently, if any, far less and much slower accumulation of fat along the course of such furrows or indentations. In Chevalier's case and in my own, as is usual in similar cases of hypertrophic development, the skin was much thickened, hardened, and firmly attached to the subjacent tissue. In the latter case the hyperplasia and condensation of the connective tissue, which imparted to the skin its abnormal firmness and immobility, was also exhibited in the firm, sharp edges of the circular openings through the cutis vera, through which the fluid escaped in the cuticular vesicles and in the grooved character imparted to the superficial vein on the outer aspect of the limb.

In those cases where the hypertrophy is associated with concurrent and recurring attacks of erysipelatous inflammation, the enlargement is probably circumscribed by the limits of the inflammatory processes. The extension of erysipelatous inflammation may be limited or hindered by the increased thickness and firm attachment of the skin to the underlying structures, as about joints and along superficial bony margins, also by the borders of portions of the integument where the direction of tension changes—the track of extension being usually in direction of the greatest tension of the portion affected. The extension may also be hindered by the natural flexures of the integument. It is, nevertheless, true that the panniculus adiposus, in its normal physiological development, presents a more or less lobular structure and formation, and when, as in Case I, the enlargements are defined by the outlines of the natural arrangement of the lobular structure of the panniculus, it is more than

probable that the hypertrophy is simply an exaggeration of the normal physiological development.

The foregoing examples of the division of the abnormal enlargement into lobes by deep furrows exhibit no general law governing such formations. It is found in both the acquired and congenital forms, and in cases in which the hypertrophy is limited to the integument, as well as in those cases in which the subcutaneous cellular tissue and panniculus adiposus are involved. The joint-flexures are exempt or but partially invaded, and flexibility is only disturbed by the mechanical obstacle presented by the size and close apposition of the masses. In the case of cranial tumor (No. 6), the furrows corresponded partially with the course of the sutures, the neck lobes were apparently limited above and below by the integumentary furrows formed by the lateral flexion of the head upon the neck and of the neck upon the trunk, and in front by the trachea. In neither of the acquired cases where the foot was involved, was the plantar surface invaded. In those cases, among the acquired forms, where the disease began in the thigh or leg, and subsequently extended, sometimes after a very long interval, to the leg or foot, the extension was not by continuity, but by separate invasion of the parts above or below the neighboring joint. These circumstances would indicate that the localities of tendinous and aponeurotic attachments, where the fibro-areolar fascia is less abundant, or nearly absent, as in the plantar and palmar surfaces, and where the deep fascia, an inelastic and less yielding membrane, serves the purposes of insertion and protection, were less favorable for such developments than the regions abundantly supplied with the loose superficial fascia and panniculus adiposus. But the immunity of the plantar and palmar surfaces, as will be shown further on, only attaches to the acquired forms.

The movements of the joints (which fortunately are usually painless), in those cases where the lobules encroach upon the flexures of the limb, and continuous flexion of the member during the progress of the development, as is the case with the extremities of the fœtus in utero, must be important factors in determining the boundaries of the masses situated in the imme-

diate vicinity of the joints. In the following case (No. 8) both knees were involved, and but a few superficial furrows were preserved. The child was born in vertex presentation, and the equable tumefaction of the left lower limb would imply that in utero the knee-joint was extended; yet the partial preservation of the furrows at the knee-flexure and on the inner and posterior surfaces of the thigh would indicate that at least a position of semi-flexion was maintained. The pressure, if thus maintained, would seem to have been sufficient to have partially preserved the natural furrows of the integument of the thigh. But in Case 9 (figure 14), in which the enlargement involved the entire right lower limb, invading alike both the knee and ankle joints, the surface was marked by several deep "transverse dimples," which did not, however, correspond with the usual anatomical arrangement of the integumentary furrows of the lower limbs of the newly born, as they are marked in cases where the lobular formation of the panniculus adiposus is well developed, or in excess, as in case 1. These cases (8 and 9) are also in contrast with the acquired forms, in that the hypertrophy has invaded both the knee and ankle joints. These discrepancies are probably due to different pathological conditions.

Case VIII.*—Description from an alcoholic preparation of a child which lived eleven days, and died of icterus. Figure 13. The child measured in length 46 ctms. Both legs were enlarged. At the inguinal fold the left measured 18 ctms., right 16 (in circumference), at largest part above the knee, the left 20, the right 12; at the ankle, the left 14, right 9. Distance of right heel from crista ilium 25 ctms., to point of great toe 10; length of left foot 9. On the left leg were a few nodes of pea size, and bluish red. The skin was everywhere thickened, covered with woolly hairs and immovable. The sole of foot was thickened and convex. First three toes greatly enlarged, second and third webbed. Skin covering ankle, knee, four smaller toes, and external surface of thigh bluish-red. The swelling was mainly due to the proliferation of the subcutaneous cellular tissue;

* Specimen presented to Obst. Soc., Berlin, by Dr. Rose, through the favor of Dr. Martin. Monatschrift für Geburtskunde, Bd. 29, 30, 1867, p. 346.

adipose tissue only being demonstrated by the microscope, except upon the anterior surface of the thigh, ball of great toe and sole of foot, where it was greatly augmented. Fat cells not enlarged. Muscles on abdomen pale, on thigh and leg brownish-red. Venous system abnormally developed. Femorals and saphena absent; but two large veins arose one from each side of the great toe, which in their ascent received numerous large branches. All were without valves. Two of the three globular tumors upon the inner side of the knee, the large tumor upon the external and the more diffused one upon the posterior aspect of the thigh were colossal venous cavities, filled with blood coägulated in layers and imbedded in brown connective tissue layers. The large tumor on dorsum of foot consisted of a perpendicular chain of varices, which communicated with the tumors about the knee.

Fig. 13.

In the right leg the venous system was normally developed; the arteries were alike in both and natural. The enlargement of the right leg was due to excessive development of the adipose tissue, and wherever on the left leg and buttock there was deficient, or certainly no excessive development of the venous system, the adipose tissue was in excess.

This specimen presented a coëxistence of fibromatous and lipomatous degeneration, yet everywhere either locally excluded the other, the fibromatous existing in immediate association with the venous angiectasis. Hence the inference may be deduced that the excessive development of the connective tissue resulted from an excessive supply and stasis of blood in varicose and valveless veins, and perhaps to that condition was due the difference in the form of the hypertrophy and its invasion of the tissues about the joints. This genetic relationship of venous stasis to connective tissue hyperplasia is more clearly shown in

the two next succeeding cases reported by Thomas Smith.*

Fig. 14.

Case IX.—K. R. was born with right lower limb enormously enlarged. The limb maintained the same proportion to the rest of the body for a time, and then grew in excess. At the age of nine months she was lively, robust, and healthy. The enlargement extended up to the groin, and, following the line of the crista ilium, extended backwards, involving the right buttock. The comparative measurements of the circumference of the limbs, as represented in figure 14, were as follows:

	Ankle.	Calf.	Thigh.
Left leg.....	4 inches.	5½ inches.	7 inches.
Right leg.....	15 "	13½ "	12½ "

The skin over these parts was thickened, rugose, very dense and hard; here and there studded with fibrous tubercles; and on the leg and foot were a few long and coarse hairs. The foot was masked with thickened integument. The thigh was proportionally smaller than the leg and foot, and was covered with skin softer and extensively stained with a superficial nævus. Over the buttock the skin was soft and natural, but quaggy in places, and discolored with a few scattered nævi. The whole limb was warmer than the left, and three inches longer, the increased length being due to thickened integument on the sole of the foot.

After a month's treatment with continuous compression, the child sickened and died.

Autopsy.—Cutis vera deeply marked by transverse dimples, two crossing the thigh, one two inches deep across calf, and one an inch and a half deep across dorsum of foot. Texture of

* St. Bartholomew's Hosp. Rep., vol. v, p. 147, 1869.

cutis natural over the buttock, uniformly thickened over thigh, and over leg and foot hypertrophied, condensed and studded with numerous knots and tubercles. Subcutaneous tissue, from two to three inches thick, about the calf and upper part of thigh, and everywhere occupied by a dense, reticulate, spongy, erectile, venous, cavernous tissue, which also invaded the intermuscular connective tissue, and extended on the right side within the pelvis and up into the loins behind the right kidney. The reticular and cavernous spaces varied in size, some large enough to receive the end of the thumb. Muscles healthy; abdominal aorta and branches healthy and of normal calibre. Right internal iliac vein enormously enlarged, and at its exit from the pelvis was joined by others of varying dimensions, some very large. At the back of the limb the abnormal system of veins belonged exclusively to the cavernous tissue, which everywhere pervaded the limb, and was supplied through large trunks formed by tributaries from the leg and foot. The nævi consisted of a spongy, reticulate tissue, containing cavities and interspaces of various size.

Case X.*—A girl aged fifteen, had suffered from birth with an enlarged right thigh and leg, much stained by cavernous nævous growths. The circumference of the right thigh, leg, and foot was from one to two inches more than corresponding parts of the left, and the temperature of the right was distinctly higher than that of the left. Over outer part of thigh was a large cutaneous nævus; on the back of the thigh and inner side were large tortuous veins and nævus growths, and behind the great trochanter were very large venous sinuses, deeply situated.

Cases 9, 10, and 8 to a less extent, are examples of congenital cavernous angioma,† the blood cavities or sinuses being imbed-

* Smith, St. Bartholomew's Hosp. Rep., vol. v., p. 150.

† It is probable that the following case recently reported by Dr. Paschal, of Chihuahua, Mexico, is a similar development. At the age of nine a small, hard tumor was discovered on the lower and right side of the scalp, which enlarged rapidly, and when first seen by Dr. P. presented the appearance as shown in the accompanying woodcut. It was sparsely covered with hair. A line drawn transversely across the top of the skull marks the commence-

ded in layers of connective tissue, and communicating with enlarged, sometimes erratic, and valveless venous trunks. It is also worthy of note that in Cases 9 and 10 the cavernous texture and nævous growths were connected with a system of veins on the posterior aspect of the affected limb which returned its blood through the great sciatic notch. In Case 8 the left lower extremity, in which the venous system was abnormally developed, the enlargement was mainly due to the new formation of the subcutaneous cellular tissue, and in the corresponding member the increased size, though less than in the right limb, consisted of adipose formation, and was unconnected with any abnormality of the venous system. In Case 9 the thickened, indurated, and nodular skin, and immensely increased underlying cellular tissue, were coëxtensive with a "dense, reticulate, spongy, erectile, venous, cavernous tissue."

In striking contrast with these cases (8, 9 and 10) is the following case of lipomatosis congenita reported by Dr. Rose,* and the succeeding one, now for the first time published.

Case XI.—The boy was three years old, delicate, and of well-formed family. Below the right axilla was a tumor, larger than a fist, with unchanged integument and indistinct margins. The brachial artery did not differ from its fellow, and the veins were not dilated. The fourth finger of the right hand was enlarged like a sausage, elongated, and abnormally movable. The last phalanx could be placed without pain upon the metacarpal bone of the thumb, the dorsum of the finger touching the dorsum of the hand. Whilst hyper-ex-

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ment of the bag-like structure, which measured from the line of commencement to most dependent portion fifteen inches, transversely from mastoid process to mastoid process twelve inches, and was three inches thick at lowest part. It was abundantly supplied with blood.—American Medical Bi-Weekly, vol. vi, p. 1, 1877.

* Presented to Obst. Soc., Berlin, through the kindness of Dr. Aschoff, Monatschrift f. Geburtsk., Bd. 29 and 30, 1867.

tension was thus increased, flexion was absent, for the articular folds were replaced by an adipose cushion of the thickness of a finger. This cushion extended to the end of the finger and made up the elongation. No fat cushion existed upon the dorsum, but it extended along the ulnar up to the elbow, and was directly continuous with the axillary tumor.

CASE XII.—Kate Burns, aged six years, now (August, 1876,) a patient in the Children's Hospital, D. C., was born with right arm larger and longer than left. The left was amputated near the shoulder-joint several years ago, and consequently no com-

FIG. 15.

parative measurements can be made. The skin covering right arm, fingers, axilla, extending behind as far as the scapula, and in front over the pectoralis, is thickened; over the arm it is marked by numerous transverse furrows, which divide it into many folds, as represented in figure 15. The hypertrophy is confined to the skin and subcutaneous tissues. The folds are movable, and can be lifted from the subjacent tissues. Power, mobility, and temperature normal. No anomalous distribution of circulatory apparatus discoverable. General nutrition good.

The growth of the arm does not appear to be in excess. Continuous compression has been tried without any apparent benefit. The child is an epileptic, and is now under treatment, with prospect of complete success.

Case XII½.*—A child, aged twenty months. At birth a tumor as large as two fists extended from the lower third of the occipital bone to the spines of the scapulæ. The tumor had diminished to one-fourth, and there were formed five longitudinal folds of skin hanging from the occiput to a transverse ridge parallel with the spines of the scapulæ. The left forearm was thicker than right, also left hand thicker than right. The two calves were thicker and harder than normal. Anomalies confined to skin and subcutaneous tissue.

Cases 4, 5, 6, 8, 9, and 10 apparently demonstrate the genetic connection of augmented venous supply, stasis, and retardation of current with connective tissue hyperplasia; but there are instances (see Cases 2, 5, 6, 7, and 8), both congenital and acquired, in which the fibromatous and lipomatous degenerations are found occupying separate territories, or in conjoint development, in which case, in addition to the anomalies of the venous system, the tissues affected were interspersed with numerous caverns and cysts filled with a coägulable fluid, and lined with an endothelium, and occasionally communicating with cutaneous vesicles, also lined with an endothelium, and containing a similar fluid. Thus the further inference seems deducible, that the two varieties of degeneration owe their origin to separate and distinct alterations of nutrition, and that in the lipomatous form the lymphatic apparatus is primarily and chiefly concerned. In another class of cases the relation of the connective and adipose tissue developments are such as to indicate the subordination of the latter to the former—that is, with increasing connective tissue hyperplasia and condensation, the adipose accumulations disappear. Various stages of transition of lipomatous into fibromatous developments are found in distinct cases, and sometimes in the same case, as in Bryk's and Steinwirker's cases. Such cases are characterized,

* Jacobi, Amer. Jour. Obst., vol. iv, p. 719.

when acquired, by inflammatory processes and transudation of fluid from the cutaneous surface, and in both congenital and acquired forms by anomalies of the circulatory apparatus, consisting almost invariably in dilated, varicose, and superabundant veins. There is another group, characterized by lipomatous formations and obliteration of all vascular systems, to which probably Cases 3 and 11 belong, and a fifth class, in which adipose developments exist in immediate association with lymph stasis. Case 1, which constitutes the basis of this inquiry, presents in association several of these conditions. But before proceeding further with this investigation into the histogenesis of these various phenomena, another marked characteristic, which was present in Cases 8, 9, 11, and 12, demands consideration.

The general growth of the child (No. 1) was satisfactory, and the nutrition of the hypertrophied limb was not only sustained, but in excess of the corresponding member, and in this particular the case followed the general law of one class of cases of congenital hypertrophies, affecting either the whole or any part of a limb. Such congenital excesses of growth may extend through the longitudinal and transverse measurements (or either) of the limb, or part of the limb affected, and may involve the osseous structure. The acquired forms of adipose and connective tissue hypertrophies, so constantly associated with lymphatic teleangiectasis, are not usually connected with an excess of growth of the bony parts through their longitudinal axes.

It thus becomes necessary, in the further prosecution of the inquiry into the nature of the phenomena presented in my own case, to introduce the cases of partial and colossal growths, which, though characterized by the absence of its predominant features, yet contribute important aid, and can not be excluded from a comprehensive analysis of its complex conditions.

Prof. Busch divides these congenital hypertrophies into two groups.* In the first group the affected parts grow in propor-

* The classification which I have made is not absolutely accurate, because it is not possible in every case to determine the group from the description. When it is not distinctly stated that the growth of the affected part was in excess, the case has been classed with the first group.

tion to the rest of the body; in the second group the giant formation is in excess of the development of the rest of the body. My case, so far as regards the hypertrophy, manifestly belongs to the latter group; for in its progressive development the right lower extremity was in excess of the rest of the body. After death the right lower extremity measured one and one-quarter inches longer than the left.

First Group.—The abstract of the cases of Klein, Wagner, Wuff, Ideler, and of Legendre have been taken from the paper, entitled "Contributions to the Knowledge of Congenital Hypertrophies of the Extremities," by Prof. W. Busch.*

Case XIII.†—The length of the hypertrophic finger of the left hand measured 5½ inches; the third joint was 14 lines, second 1 inch, the first 1 inch thick. Greatest circumference, 4½ inches. The fingers stood in slight ulnar abduction in the articulation of the first and second, and in that of the second and third phalanx, so that it bent over the middle and ring-finger. Motion was good in the metacarpal articulations. The articulation was not normal, as the articular ends of the first phalanx and of the metacarpal bone were much enlarged and malformed.

Case XIV.‡—Right hand of a boy, which enlarged in proportion to the growth of the entire body. In his fifth year a fatty tumor appeared upon the right breast, which extended from the sternum to the axilla, and was followed by the extension of the hypertrophy from the hand to the forearm and arm. The increase in thickness was caused by irregular pads. The thumb was smaller than natural, and separated from the index finger by a fatty tumor. The index finger measured in circumference 6½ inches; the thinner third phalanx stood in hyperextension. The middle finger measured around first phalanx 13¼ inches, and decreased suddenly in its third phalanx. Fourth and fifth were hypertrophic and webbed. Between the fifth and wrist-joint was a fatty tumor. Veins upon dorsum of hand varicose. Pulse equal on both sides. Movements of the hand, which weighed 12 pounds, not impeded.

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* Archiv für Klein. Chir., Langenbeck, vol. vii, p. 174, 1861.

† Von Klein, Von Graefe and Walther's Journal, p. 379.

‡ Wagner, Schmit's Jahr., iii, Supplement, 1842, p. 86.

Case XV.*—A girl, 16 years old. Second toe of left foot twice as long and thick as it should have been. The first and second phalangeal articulation was supplied with a firm and callous ball. The first phalanx was in slight hyper-extension; movements of flexion and extension difficult.

The plantar surface of first and second phalanx covered with a thick layer of fat. Arteries and nerves "showed nothing peculiar." The ligaments were tense, and formed by shining, firm fibres. Articular ends corresponding to the hyper-extension, "somewhat deformed."

Case XVI.†—A man, 32 years old. From birth half of the palm of the first three fingers of the right hand had been deformed by an enormous development of the subcutaneous adipose tissue, which at first grew pari passu with the growth of the body, but in later years "increased independently." The articular epiphyses of the metacarpo-phalangeal articulations were malformed. The metacarpal and phalangeal bones were enlarged transversely. Thumb hyper-extended. Arteries alike on both sides. The weight of the hand rendered it unfit for function.

Case XVII.‡—The skeleton of a foot preserved in the Berlin Museum. The bones of the three middle toes exceeded in length those of the pollex and little toe (see figure 16), both in the phalanges and in the metatarsus, and were thickened.

Figure 16.

The great toe was less developed, and the little toe was rudimentary, forming an appendage to the fourth metatarsal. The toes were in strong dorsal extension. The deformities grew in proportion to the rest of the body, and rendered walking difficult.

Case XVIII.§—A child, four years and six months old. The third and fourth fingers and ulnar half of the volar aspect of the hand hypertrophied, third to the size of an adult. The

* Bohms, Inaugural Dissertation, Giessen, 1856.

† Wuff, Petersb. Med. Zeitschrift, 1861, No. 10, p. 281.

‡ Busch, loc. cit.

§ Legendre, cited by Bohms, loc. cit.

fingers showed two curvatures—one along the dorsum, the other along the radial side. The last phalanges stood in rectangular hyper-extension. The enlargement was due chiefly to increase of the subcutaneous adipose tissue—a thick elastic cushion, which was on the palmar surface. The little finger was not increased in length, but thickened by a cushion of fat on the palmar surface. Upon the palm of the metacarpus was a very considerable layer of fat, corresponding to the third and fourth fingers, which was divided from the most of the palm by a well-marked line. Motion in the affected parts was limited.

Case XIX*—A boy, aged 12. Both feet enlarged. A large lipoma in right gluteal region, and several smaller ones beneath integument of left thigh. Upon both feet (see figure 17), as shown upon the left, were large lipomata, both upon the dorsal and plantar surfaces, reaching even beyond the malleoli. The three middle toes were webbed and enlarged.

Case XX.†—Healthy girl, aged 16. The fingers (middle) measured $5\frac{1}{2}$ inches in length, and the same in circumference at base.

Case XXI.‡—A boy, aged 10. At birth the second toe of right foot was elongated and thick, and has steadily enlarged, and now measures seven inches in circumference, and projects three inches beyond the other toes. Skin healthy and natural in color. The metatarsal and phalangeal bones were hypertrophied in the same relative proportion with the soft parts, and the cellular texture had degenerated into a light-colored fibrous mass, holding in its cellules whitish fat granules. The bleeding vessels were numerous, but only two or three required ligation.

Case XXII.§—A man, native of India. Right foot measured in circumference 9 inches, left $15\frac{3}{4}$; length of right big toe $1\frac{1}{2}$ inch, left $4\frac{1}{2}$ inches; circumference of right leg near ankle $8\frac{1}{2}$ inches, left $7\frac{1}{2}$ inches; circumference of left big toe $7\frac{1}{2}$ inches, of second and third toes together 8 inches, of fourth and fifth $1\frac{7}{8}$ inch; length of second and third toes (united) $3\frac{1}{2}$ inches. (Figure 18.)

* Ideler, Inaug. Dis., Berlin, 1855.

† Bigelow, Boston Med. and Surg. Jour., vol. xliii, p. 341.

‡ Hamilton, Buffalo Med. Jour., vol. vi, pp. 154–5.

§ Simpson, Month. Jour. of Med., vol. xx, p. 173.

CASE XXIII.*—George P., aged 19 years. The comparative measurements of the two lower extremities show the excessive development of the right.

FIG. 17.

FIG. 18.

	Right.	*Left.*
Entire length of limb	30 inches.	28½ inches.
Circumference over malleoli	10 "	9½ "
Circumference of calves	13½ "	13½ "
Junction of middle and lower thirds of thigh	16½ "	15½ "
Upper third of thigh	20 "	19 "
Of nates	13½ "	11¾ "

A large superficial nævus occupied the entire limb, extended up to the last dorsal vertebra, and completely covered one-half of the scrotum.

CASE XXIV.†—A girl, aged 6 years. The essential change consisted in large, painless, pad-like tumors upon the dorsum of the hand, and upon the dorsal surface of the middle, ring, and little fingers, all four divided by the shallow sulci from each other. They were movable in a lateral direction, and were of the consistence of lipoma; were firmly grown together with the tense, foldless, and thinned integument. The pads began at the metacarpo-phalangeal articulation, and passed without interruption and without pressure over the joint between the first and second phalanx to the articulation between the second and third phalanx, and there descended abruptly to the unchanged third phalanx. Upon the volar side of the first and second

* John Adams, Lon. Lancet, vol. ii, p. 140, 1858.

† Kappeler, Chir. Beobacht. aus dem Kantonspital Münsterlingen, 1865, 1870, p. 246.

phalanx of the fingers there were also similar pads, which did not extend over the articulations, but were divided by the articular folds; upon the volar surface of the hand, opposite the heads of the metacarpal bones, another pad was located, which passed without defined limit into the integument.

Right thumb	4	ctms.	Left thumb	4	ctms.
" index finger	4½	"	" index finger	5	"
" middle "	5	"	" middle "	5¾	"
" ring "	4½	"	" ring "	5½	"
" little "	4	"	" little "	4½	"

FIG. 19.

The elongated fingers were enlarged in circumference. The bones of the malformed fingers appeared thicker and bulky. Integument was thinned and tense. The enlargement was due chiefly to lipomatous-like tumors located in the subcutaneous cellular tissue, which only interfered with the functions of the parts to a very slight degree; nothing abnormal could be discovered in the circulatory apparatus, though the affected parts felt colder than the corresponding parts, and were much less sensitive.

ART. II.—*Cinchona Alkaloids and their Salts.* By FERDINAND KING, M. D., Ph. G., Atlanta, Ga.

Owing to the scarcity and high price of quinine, physicians have for some time past been experimenting with quite a number of alkaloids of various kinds, in the hope of finding a good substitute for that time-honored and well-known remedial agent. These experiments and investigations, which have been more vigorously prosecuted in the Western and Southern States than elsewhere, have not been confined exclusively to the small group of alkaloids derived from cinchona, but have embraced

every other remedy calculated to produce an anti-periodic or febrifuge effect upon the animal economy. In searching for this much-coveted substitute, our profession has been sadly imposed upon by large numbers of silver-tongued agents, sent out by unscrupulous, enterprising manufacturers, who by their smiles and graces induce some leading physicians to give their preparations a trial, thus creating a temporary demand for them, thereby enriching the originators and making consumers poorer and very little wiser. In my humble judgment we lose ground every time we deviate from the old and long-beaten track. The scientific investigator so far has been unable to find anything possessing the same anti-periodic properties as cinchona and its preparations. Some new discoveries have for a time enjoyed considerable reputation, but after thorough tests have gone down before cinchona and its allies, never to rise again.

Sometimes we have unpleasant symptoms, such as urticaria, following the administration of quinine, which I am sure depends upon some idiosyncrasy of the patient, just as catarrhal symptoms not infrequently result from the use of iodide of potassium. These consequences, observable in such a small per cent. of patients where valuable therapeutic agents are administered, should not, I am sure, prejudice us against their general use. The same objections urged against the use of quinine under certain pathological conditions can with equal propriety be applied to the other alkaloids of cinchona, quinidia, cinchonidia, quinidia and cinchonia. These unpleasant effects are observable when we administer any of the alkaloids just enumerated in large doses. Take, for example, sulphate of cinchonidia, which is perfectly worthless as an anti-periodic, unless we give at least three times as much of it at a dose as we do of the quinine. When given in these large doses we find all the symptoms of true "quininism" present; such as cerebral disturbance evinced by a feeling of tightness in the head, ringing in the ears, difficulty of hearing, etc. It seems that these effects must be secured before the system of our patient can be considered proof against repeated malarial paroxysms. As it requires three or four times as much sulphate of cinchonidia,

for example, to secure this "quininism" as it does of the sulphate of quinine, I think we practice poor economy in administering the former in preference to the latter.

I do not think the *modus operandi* by which the various alkaloids of cinchona relieve malarial fevers or influences is really understood by a large majority of our Profession, but that it is too often hypothetical in the minds of our average practitioner. That some, and perhaps many, of these hypotheses are correct, I do not pretend to deny. We all know that the blood undergoes the most remarkable changes in patients suffering from the effects of malarial poison. There is a very perceptible increase in the quantity of the plasma or alkaline fluid, while there is a corresponding decrease in the red globules or corpuscles. This condition is plainly evinced by the characteristic paleness always observable in patients suffering from malarial anæmia. Scientific and intelligent physicians will readily agree that it is necessary to restore the blood to its normal condition before we can give back to our patient his wonted health. We should therefore examine his blood, and learn what elements are wanting, before we attempt to administer remedies. We should then give him such medicinal agents as are calculated to replace the lost elements and restore the blood to its original healthy condition. We find nothing in our materia medica that meets all the indications in these cases as completely as the cinchona or Peruvian bark itself, but owing to its bulk and the length of time required for its assimilation, it is objectionable. The ingenuity of the intelligent pharmacist has overcome these objections by giving us all the active principles of the Peruvian bark in a combination very appropriately called by its manufacturers (Messrs. Billings, Clapp & Co., of Boston) cincho-quinine. In this combination we find the nearest approach to the original substance, Peruvian bark, that modern science has yet attained. It is, as before stated, a combination of all the active medicinal principles of the best calisaya bark; and after the long and thorough testing it has had, it stands unrivaled as a prompt, safe, and uniformly reliable antiperiodic, possessing all the advantages, with none of the disadvantages, of sulphate of quinine, or any of the single

alkaloids of the cinchona. It is entirely free from such external agents as sugar, licorice, starch, magnesia, etc. It is wholly composed of the bark alkaloids, quinia, cinchonia, quinidia, cinchonidia, and the other alkaloidal principles which have not been distinctly isolated, and the precise nature of which is not well understood. Analyses by disinterested chemists attest their presence. In its preparation all the active tonic and febrifuge principles of the bark are secured without the inert bulky lignin, gum, tannic acid, etc. It exerts the full therapeutic influence of sulphate of quinia, in the *same dose*, without oppressing the stomach or creating nausea. It seldom produces cerebral distress, as quinine does, and I have found it to produce much less constitutional disturbance than the latter agent.

During my experience as a country doctor, in the swamps of Alabama, I found it far superior to any other preparation I ever used in the treatment of the chronic forms of chills found there. I could not cure my patients with the quinine uncombined, as it simply acted as a cerebral stimulant, and did not seem to improve the debilitated condition of the sufferer, as did cincho-quinine. I have never found any difficulty in getting the most delicate child or squeamish female to swallow the cincho-quinine, as it is almost tasteless and does not leave that clinging, lasting, bitter taste peculiar to the sulphate.

One of the main points I desire to impress upon the minds of those who read this article is, that cincho-quinine is not sulphate of quinine; it is not sulphate of cinchonidia; but it is all the alkaloids in *combination*, and it is this composition, this representation of all the medicinal principles found in Peruvian bark that gives it the value claimed for it over and above all other preparations, or any one of the alkaloids.

It is generally believed by a large number of old practitioners that the reason why larger quantities of quinine are required to combat malarial diseases than formerly, is not because of the impurity of the sulphate of quinine, but because it is too purely and solely a sulphate lacking the other useful and important principles above referred to, and that are so surely calculated to successfully overcome the various unfavorable pathological conditions that invariably present themselves in patients suffering from exposure to malarial or miasmatic influences.

Cincho-quinine is not explosive in its action, as in the combination the amount of nitrogen always present in most alkaloids is greatly diminished by uniting the several cinchonia alkaloids, hence less cerebral feelings and less constitutional disturbance follow its administration than are usually attendant upon the use of the uncombined alkaloids. The same rules, as I before stated, are to be observed with regard to the use of the cincho-quinine that govern the use of the sulphate. It is given in the same doses, and where the siege treatment is indicated, it commends itself to the special attention of the entire Medical Profession.

Cincho-quinine has been thoroughly tested by many of the most learned teachers and practitioners of medicine in the North and West, and in some sections of the Southern States, giving in every instance the most satisfactory results. Indeed, I have heard of it being abandoned in no instance, while sulphate of cinchonidia and other cheap alkaloids have gone into total disuse.

Not only should the real value of cincho-quinine recommend the article to our Profession, but its low price is another inducement for us to prescribe it. It is less costly than the sulphate while the dose is the same. The price of it fluctuates with the rise and fall of the Peruvian bark just as in the case of the sulphate, still it is at times furnished at about half the cost of the latter article. Some may ask why the cincho-quinine has not come into more general use in the South. To such I would say, it is from the fact that it has been but recently offered to the Profession, and has not been so extensively advertised as sulphate of cinchonidia and some of the other more worthless articles that have been forced into the offices of a large number of our physicians. Cincho-quinine stands upon its own merits, and will come into more general use at an early day. I know personally, at this comparatively early day, several physicians in our own State who use it altogether in preference to quinine or any of the single alkaloids. It is not pushed upon our Profession by an army of smiling agents that infest our country, singing songs and tipping social glasses with the liberal members of our medical societies at their local or

State meetings. Its manufacturers claim no special praise for giving us this valuable and economical remedy. And here I would state—rather parenthetically—that "we are under lasting obligations" to no living firm of manufacturing chemists for the cinchona alkaloids, as they were all discovered even prior to 1835. The praise for scientific discoveries should, in my humble judgment, be awarded the discoverer, and not him who profits and grows rich by it.

CLINICAL RECORDS.

"Ex principiis, nascitur probabilitas: ex factis, vero veritas."

ART. I.—*Ovariotomy—Result—Cure.* By W. H. ARMSTRONG, M. D., Dallas, Texas.

Mary Dougherty, native of Georgia, aged seventeen years and nine days; unmarried; sanguine temperament. Noticed swelling in her abdomen fourteen months since, commencing at no particular part. Complete absence of menstruation, or any molimen. The tumor continued to increase in size, her health becoming gradually impaired; all of which symptoms were, by the family, attributed to menstrual derangement. Physician called in, who administered hydragogue cathartics, diuretics, etc. No diminution in size of tumor; in fact its dimensions steadily increased, while her strength was greatly reduced. Moved to Dallas county, Texas, November, 1876. The tumor in the meantime growing rapidly. Was called to see her April last. Upon examination found a tumor of large size, with all the characteristics of the ovarian. Shape remaining the same in all positions of the body. Dullness on percussion over the entire abdomen, excepting the flanks, where the note was resonant. Marked fluctuation over entire tumor; no fluctuation in Douglas' cul-de-sac; uterus of normal size and depth, but considerably retroverted. Diagnosis, unilocular ovarian tumor. Set May 23, 1877, for operation. Drs. Graham, Thruston, Leake, Allen, Charles Locke, Tarver and Stevens present and assisting.

Having administered some brandy, the patient was without difficulty put under the influence of Squibb's sulphuric ether. Commenced abdominal incision at a point in mesian line, two inches below umbilicus, extending it three inches downward; cut through each subjacent layer until the peritoneum was reached. There was but slight hæmorrhage during the preliminary incision. After all oozing had ceased, clipped peritoneum and slit it up on grooved director the length of original incision. The ovarian sac being now exposed, I introduced a sound, sweeping it around the tumor as far as it would reach. At this point there was a slight gush of peritoneal fluid. The sound passed readily, except in the epigastric region, but with slight force it glided around. Introducing my fingers between sac and the peritoneum, with curved scissors I extended the incision two inches above the umbilicus, making the wound seven inches in length. Spencer Wells' trocar was then thrust into the tumor, and the fluid received in a tin gutter. After some of the fluid had passed, the spring tenaculum of the trocar readily grasped the walls of the cyst. Having exhausted the sac of its contents, as far as pressure on the tumor could effect it, the trocar was withdrawn, and the remaining fluid pumped out with a Davidson's syringe. The sac in the meantime was held firmly by tooth forceps, making an incision in the sac. I introduced my hand and examined for additional cysts. I found nothing except some hard masses about the size of the adult fist attached to the inner wall. After removing a part of the sac through the incision, I found extensive adhesions of the omentum, which was peeled from the walls of the cyst by the fingers. The sac was now withdrawn, and was found to involve the entire left ovary; the broad ligament constituting the pedicle, being about six inches in length and nearly four inches in width. The pedicle was tied about two inches from the uterus with a double ligature of silk; the sac clipped off; the ligatures cut short, and the pedicle returned to the pelvic cavity. The right ovary was found to be healthy. The cyst being removed, I found considerable hæmorrhage from the ruptured vessels of the omentum. These were secured by torsion. Fearing that the lacerated part of the omentum might prejudice the result,

it was tied with catgut ligature and snipped off. Removing all clots from the abdominal cavity, and sponging it out thoroughly after all hæmorrhage had ceased, the abdominal incision was closed by the interrupted silver-wire suture and supported by adhesive slips; cotton batting and a bandage were applied, and the patient removed from the operating table to her bed. The time from the commencement of the administration of ether until the patient was placed in bed was two hours. The patient immediately recovered from the anæsthetic. A hypodermic injection of one-fourth grain morphia was given, and she was soon asleep, having taken a little iced brandy. The sac and contents were placed in the scales, and found to weigh thirty-three pounds. The fluid was of the consistency and color of chocolate; devoid of odor. The walls of the cyst were nearly one-half inch in thickness, and attached to its internal surface were several solid masses above mentioned. The patient rested well until late in the evening; complained of thirst and nausea; iced brandy gave prompt relief; small quantities of iced sweet milk were also given. Pulse 120; temperature 102°. Becoming restless toward night, another hypodermic injection of one-fourth of a grain of morphia was given.

May 24.—Slept well during the night. Took iced milk occasionally, also iced brandy pro re nata. 7 A. M.—Pulse 106; temperature 100°; resting well; continued milk and brandy. No tenderness of abdomen; appetite good; no nausea; drew off urine. 2 P. M.—Restless; some slight tenderness in left iliac region; pulse 120; temperature 101°. Gave iced brandy and morphia; soon feeling better and sleeping; drew off urine; continued milk and brandy pro re nata; pulse quick and strong. 5 P. M.—Pulse 112; temperature 100°; sleeping quietly and perspiring; no pain. 9 P. M.—Has been sleeping pleasantly; feels stronger; takes iced milk with avidity; no nausea or thirst; pulse 106; temperature 99½°. Everything progressing favorably; patient in fine spirits; is contented and happy.

May 25, 7 A. M.—Pulse 102; temperature 100°. No complaint of tenderness. I continued treatment as before. 3 P. M.—Has been resting well; pulse 116; temperature 100½°;

wound looking well; slight tenderness in left iliac region where the pelvic extremity of tumor rested; slight tumefaction; appetite good; thirst not urgent. Continued application of carbolized lint to incision.

May 26.—Heavy rain during previous evening; room flooded with water; bed partially wet; kept the patient from getting wet with much difficulty; passed night tolerably well. 6½ A. M.—Pulse 118; temperature 101°; no other change; continued treatment. 4 P. M.—Pulse 105; temperature 99°; everything favorable; no change in treatment.

May 27, 7 A. M.—Pulse 110; temperature 99°. Rested well during the night; appetite good; takes iced milk with relish; strength increasing; wound looking well; very little tenderness in left iliac region. 10 P. M.—Pulse 118; temperature 101°.

May 28, 7 A. M.—Pulse 112; temperature 100°. Rested well during the night; diet the same; drew off urine twice every twenty-four hours. 3 P. M.—Examined wound; found it doing well; very slight tenderness in left iliac region; pulse 104; temperature 99½° F.

May 29.—Patient rested well during entire night. 10 A. M.—Pulse 97; temperature 98½°. 7 P. M.—Pulse 102; temperature 98½° F. No fever during entire day, and has rested finely. Strength increasing; desires to sit up; is cheerful and contented. Tongue clean and normally moist; no thirst. Iced sweet milk continued; teaspoonful of brandy occasionally; morphia pro re nata to prevent action from bowels.

May 30, 10 A. M.—Pulse 102; temperature 99½°. Passed a pleasant night. 9 P. M.—Pulse 103; temperature 99½°. Has rested well all day; strength improving; but slight tenderness in left iliac region; milk and brandy as before; wound looking well.

May 31, 7 A. M.—Pulse 96; temperature 98½°; appetite not so good, but sufficient. Rested well during the night; passed urine voluntarily; the use of catheter suspended; tongue moist and clean. 2 P. M.—Pulse 97; temperature 98½°.

June 1, 8 A. M.—Pulse 95; temperature 98½°. Removed all the sutures but one. Peritoneum united, also part of muscular structure; the rest granulating. Firmly approximate

lips of wound with adhesive strips; applied carbolized lint; batting and a bandage; took chicken broth in addition to milk. 6 P. M.—Resting well; pulse 92; temperature 98½°.

June 2, 9 A. M.—Pulse 97; temperature 98½°. Slept well during the night; appetite good; passes urine regularly; strength improving. 8 P. M.—Pulse 88; temperature 98½°; resting well; bowels disposed to move; restrained by morphia.

June 3, 7 A. M.—Pulse 88; temperature 98½° F.; rested well during the night. Removed remaining suture; wound doing well.

June 4, 8 A. M.—Pulse 88; temperature 98½° F.; passed good night; morphia to restrain bowels. 5 P. M.—Pulse 88; temperature 100° F.; resting well.

June 5, 6 A. M.—Has passed quiet night; strength increasing; pulse 73; temperature 98½° F. Gave injection of soapsuds; mass of hardened fæces pass; bowels act several times; patient feels much better; bowels disposed to act too freely; introduced suppository of tannin and morphia, which checks them.

June 6.—Pulse 75; temperature 98½° F.

June 7, *Morning.*—Pulse 97; temperature 99° F.; has rested well during the night; repeat injection; free and soft action from bowels. Patient much stronger; appetite good; tongue clean and moist. Day quite warm; patient complains of extreme heat. Diet, chicken, milk, and light-bread. Takes ice ad libitum.

June 8, *Morning.*—Rested well during the night; pulse 88; temperature 98½° F.; soft and consistent action from bowels. Evening—Pulse 85; temperature 100° F.; strength greatly increased; is gaining flesh; appetite good.

June 9, *Morning.*—Bowels quiet; rested well; takes light-bread, corn-bread, milk and eggs. Evening—General condition: Pulse and temperature the same; wound looking well; pus mainly from suture joints; no pain or tenderness.

June 10, *Morning.*—Pulse 73; temperature 98½° F.; passed pleasant night; strength rapidly increasing; being solicitous to sit up. Evening—No change in pulse and temperature.

June 11.—Pulse 72; temperature 98½° F.; is acquiring flesh;

wound doing well; but slight suppuration; small abscess forms at one of the suture joints; open it with bistoury.

June 12.—Injection of soap-suds; full action; bowels disposed to move too freely; restrained by suppository.

June 13.—General condition, etc., the same; strength and appetite improving; pulse 98; temperature 98½° F.; sits up and feels much refreshed.

June 14–15.—Improvement steady; gets up and walks around the room; gave two drachms oleum ricini, to secure action on bowels. From this time on the history of the case was one of steady improvement. Appetite, strength and flesh increasing, nor was there a single halt in the advance towards recovery. The patient is now entirely well, visiting her friends and enjoying the pleasures—from which she was so long cut off—of social life.

The above operation demonstrated two facts—the propriety and safety of returning the pedicle to the cavity of the pelvis; secondly, that silk is as innocuous as silver ligature, while it possesses the great advantage of being more easily and securely applied.

PROCEEDINGS OF SOCIETIES.

"Etsi non prosunt singula, juncta juvant."

Darwinism—A Satire.

BY H. M. SMITH, M. D., VINCENNES, IND.

Who will deny this is a reasoning age,
When we can clearly trace our lineage
Through fine "selections" and "developments,"
Unhelped by Revelation, common sense,
From man and woman, shaped to glorious forms,
To hopping fleas and loathsome, crawling worms.

Time was when we were taught to act and think,
That there was no connecting, common link
Between the brute and human, but alas!
We find we are related to the ape and ass;
And though we fail our true kinship to find,
The difference is in shape and not in kind.

Who can not some resemblance strong descry
Between a lady and a butterfly,
As she, full-rigged like a vessel trimmed for sail,
Throws all her skirts and "pinbacks" to the gale,
Bedecked with hues through art and nature's freaks,
That oft outshine the paint upon her cheeks?

And don't the model dandy, "dressed to kill,"
Or wound his sweetheart 'neath her linen frill,
Recall the plumage and the peacock strut,
When both their all upon their backs have put,
Unconscious that the crowd that 'round them gathers
Is but attracted by their fuss and feathers.

A "drummer's" likeness who can not discern,
To elephant, which has his "grub" to earn?
Each packs his *trunk* in travelling to and fro,
And takes up *quarters* at each town they go;
Each travels for a *show*, as you may see,
And if unchecked, when bent upon a spree,
(Although each one a different cause espouses),
They're pretty sure at last to "break their *houses*."

That polly parrot and the politician
Are much alike, 'twould take no great magician
To demonstrate, since seizing on the *poles*,
Each sees his *footings* good in all his roles;
They well agree in all their songs and metres,
And often act their parts as "ward repeaters";
For in each case of squalling and of splutter,
They have a common object—"bread and butter."

And who, with keen perception, can not draw
Resemblance 'twixt the learned judge of law
And silent owl, with solemn face and eyes?
Both put on dignity, and each looks wise;
Both sit among the *limbs*—the one of trees,
The other those of law, of all degrees;
While each, in doing justice to his cause,
Deals *fowl*-ly often with the *footed claws*.

And there are persons (and to them bad luck)
Who see between the doctor and the duck
A likeness strong, and have as proof to back it,
That both have a propensity to quack it.
The charlatan, of herbs and sugar pills,
Oft like the duck has *flat* and lengthy *bills*,
And each in turn is often seen in quest
Of "softest takes" to "*feather* well his *nest*."

Yes, even though against our pride and wishes,
Our line is traced way down to bugs and fishes;
For pretty mermaids that live 'neath the waves,
And flirt with beaux within their coral caves,
In time may change their haunts for cots and gardens,
And with their sisters sport the "Dolly Vardens."

And too, the merman, will he lag behind,
When he has not a tail to wag behind?
Oh no! he'll put on airs, like any other
"Big fish," evolved into a "man and brother,"
Who has exchanged his drink (a common fate)
For that of brandy sling or "whisky straight."

And thus we see, through scientific glasses,
Some common traits developed by the "masses"
Of human kind and beasts, that otherwise
Would seem inexplicable mysteries.
But he who now the likeness can't discern
Is quite too big a fool to "live and learn."

Yes, sages, who in science deeply revel,
Have found for animals a common level,
And, like unerring water in its downward course,
Blest "evolution" points the native source;
And though the fact may tinge the cheek with shame,
We learn our origin and whence we came.

With syllogisms, devised by cunning art,
They prove all creatures had an even start;
And when some, in improvement's onward race,
In Nature's scale secured the higher place,
'Twas by "selection," "blue glass," or "mistake,"
That caused them all the "new departure take."

They set at naught as false the wondrous plan
God purposed when He said, "Let us make man,"
And bridged their path o'er the chaotic chasm
With what they call the "protoplasm,"
But leave to chance at some propitious hour,
To start it with the vitalizing power.

Say they the "protoplasm" from protein came,
Through "isomeric forms" with upward aim,
And "molecules" by "affinities" arranged,
As they in Nature's crucible were changed;
But whence the "protein," as thus combined,
And all its elements that stand behind?

Suppose that mankind first did take its start
In cell and germ, each playing well its part,
Until evolved in circling years to babyhood,

Who furnished nurses for the "little brood?"
Who made their beds at night, so warm and neat,
And "tucked the covers" 'round their tiny feet?
And when, from hunger, mamma they were calling,
Who soothed and gave them milk to stop their squalling?

Pray, Dr. Darwin, who supplied the teas
To cure the colds contracted in the breeze,
When out upon a little picnic frolic,
Or soothing syrup when they had the colic?
Who taught their lisping tongues the human speech?
Was it the moaning sea shell on the beach?
Or echo notes, which through the forest rang?
Or ring-tailed monkey or ourang-outang?

And do we find the little fellows springing
Up through gradations time is ever bringing,
From highest type to lowest anemone,
The one to be the daughter, t'other "sonny"?
If so, by all means let the fact be stated,
And let the darlings all be "cultivated,"
As by "selection" or by evolution, may be
We all may boast a good and pretty baby.

Suppose it took a million years to bring
The "elements" up to a living thing,
Why can we not, in the transforming stages,
Witness what others saw in ancient ages?
'Twere generous to say, to cover up the point,
"The times," these days, "are sadly out of joint,"
Since Science has her garner fully loaded
With baseless theories by truth exploded.

But, when in wisdom's deepest depths profound,
These sages have at last the "unit" found,
The utmost bounds of science have been reached,
And all the sophistry that they have preached
Then fails them, and compels at last a pause
If they ignore a potent, great "first cause."

We know we can a compound change at will
Into its elements with cunning skill,
And then as easily can recombine
The same, yet these show not the hand divine,
In hydrogen and oxygen combined;
The compound water we are sure to find,
Yet, at the chemist's skillful touch, 'tis true,
It may assume ethereal weight and hue.

So too a crystal with its clear cut faces
By solvents can be changed, so that no traces
Are left behind to tell of former beauties bright,

Reflected and refracted by the light;
And still through Nature's fixed, unvarying laws,
As surely, as effect does follow cause,
This mass may yet that lovely form regain,
If first conditions are assumed again.

Not so with living cell and bioplast;
Once changed they nevermore can be recast
Into their former being from the dead,
When once the living vital spark has fled.
Then why this difference, we the savans ask,
'Twixt dead and living, 'twere a useless task;
Through words revealed we have a clear solution;
Through Darwin 'tis befogged in "evolution."

If a creator is required at last
To form the elements of bioplast,
Why go behind the moulding power revealed,
And seek by art some mystic one concealed?
For He who could a nucleus create
Could fashion mankind to their high estate.

The rule is poor that will not work both ways
Has been a maxim lo these many days,
And if it be accepted as a truth,
Then why may we not just as well forsooth,
Say "Jocko" lost his manhood for a cage,
Since this is roundly cursed as a degenerate age?

Can't Darwin see in the descending scale,
That mankind might at last "evolve" a tail,
If circumstances were at all propitious,
To give them four legs and a temper vicious,
Since Nature, in devious moods and ways,
Often a downward tendency betrays?

Then taking as a truth this olden rule
Of double action, up and down, the school
Of Darwin might have solved the problem clearly,
Of extinct races that we learn of yearly,
Of men whose cities in our Western land
As monuments to their genius stand.

Did they assume a higher type, or did they change
Their shapes and natures for a lower range?
Science in this dilemma doth avail
To trace the missing link to "Spotted Tail,"
And all his nomad kindred, high and low,
From painted chief to shaggy buffalo.

In free development reversed we see,
When left to chance or blind "selection" free,

We might descend the scale to simple forms,
Until we reached the level of the worms;
Our origin and fate we learn at last in the downward grade,
If "evolution" did but lend its aid.

"From dust thou art, to dust thou shalt return,"
A meaning has that man was slow to learn,
But through the light that scientists have brought,
And all the late inventions they have wrought,
Our origin and end, we learn at last,
Begins and ends in fog and "bioplast."

Now, doctors, if your pride of birth be mocked,
And all your sentient nerves be rudely shocked,
To learn your "family trees" commenced in fog,
And can be traced to bug or pollywog,
Through Nature's freaks and changeful ways,
To Darwin, Spencer, Huxley give the praise.

Kanawha Medical Society.

At a special meeting of the Kanawha Medical Society Charleston, West Va., held at the office of Dr. Comstock on the 23d of May, 1877, Dr. Spicer Patrick in the chair, the following preamble and resolutions were unanimously adopted:

WHEREAS, It has pleased Almighty God to remove by death our late friend and professional associate, Dr. A. G. McChesney—

Resolved, That we regard this dispensation with the deepest sorrow, and will ever deplore the removal of one so useful and honored, in the prime of life and in the midst of a successful and bright career.

Resolved, That we entertain a high sense of his ability, his integrity, and untiring industry in his Profession.

Resolved, That we cherish his memory as a good man, emulating his virtues as a citizen, friend, and Christian.

Resolved, That we deeply sympathize with his family in their irreparable bereavement.

Resolved, That copies of these resolutions be sent to the family of the deceased, and to our city papers, the "Virginia Medical Monthly," the Richmond and Louisville Medical Journal, and the American Medical Bi-Weekly.

W. P. EWING, M. D.,
J. T. COTTON, M. D.,
A. E. SUMMERS, M. D. } Committee.

LAWRENCE CARR, Secretary.

ORIGINAL CORRESPONDENCE.

"Sit mihi Fas scribere audita."

WINONA, MISS., July 27, 1877.

Prof. E. S. Gaillard:

Dear Sir,—I take the liberty of giving you my plan of treating infantile convulsions. About twelve months ago I was called in haste to see a very sick child. On arrival I found my little patient in a severe convulsion. The mother and female friends had already in requisition the usual warm-water bath, etc. Upon examination, I found the case a very bad one, and in my opinion could not bear many repetitions of such convulsions as the one I had witnessed. Finding that I had none of the ordinary anti-spasmodics in my saddle-bags, it immediately occurred to me that, as the hydrate of chloral was so efficacious in puerperal convulsions, in which I had often administered it with success, I could see no good reason why it might not be equally potent in convulsions of children. I immediately administered five grains of chloral in solution. To my great delight my little patient was sleeping pleasantly in ten or fifteen minutes, and had no further return of the convulsions. Suitable remedies to overcome the fever and correct the secretions were then administered, and I had the satisfaction of seeing my patient restored speedily to perfect health, since which time I have administered the chloral in convulsions of children in at least a dozen cases with complete success. In no case in my hands has it been necessary to repeat the remedy, it invariably acting as a specific. After the convulsions have been arrested by the chloral, it will be found necessary to address such remedies to the system as may be necessary to remove the cause and thus restore the patient to health.

I have long since regarded our therapeutics as defective in the treatment of infantile convulsions. We have hitherto had no anti-spasmodic upon which we could rely to arrest the spasms and hold them in abeyance until proper remedies could be addressed to the system to correct the cause. With confident certainty I can now safely recommend the chloral. As to its

modus operandi, I leave the philosophers in our profession to explain, having stated such facts only in regard to its use in this form of disease as have come under my own observation within the last twelve months. Since I commenced the use of chloral in this disease, I have not lost a single case. All have recovered.

Before chloral was much used, several years since, I was called at midnight on one occasion to see a child in convulsions, of which it had had several hundred, and thought to be in articulo mortis. All the usual remedies prescribed in the books had been given. Upon careful examination, I concluded that there might possibly yet be some chance for the child, and proposed one-eighth grain of morphine, which we immediately administered. The child had no repetition of the spasms, and by the use of stimulants, etc., was soon able to talk, and by daylight was in conversation with its mother, and made a very satisfactory recovery, with the exception of partial hemiplegia, from which it has not entirely recovered. The child was about two years of age, and had not been able to speak for forty-eight hours previous to the administration of the morphine.

If the foregoing facts shall be of benefit to any of your numerous and intelligent readers, I shall be more than repaid for the contribution.

I am, very respectfully, your obedient servant,

W. W. Dabney, M. D.

Helena, Ark., July 4, 1877.

Dr. E. S. Gaillard:

Dear Sir,—Much has been said of late through the columns of your Journal in regard to the oxytocic influence of quinia. In view of the fact I venture to give my experience. Scarcely a week passes without my giving quinia or some preparation of cinchona (and most generally quinia) to one or more pregnant women, and I have never, in a single instance, seen any evil results therefrom. It seems strange to me that if this salt would produce abortion, why such a thing has not been noticed years ago by practitioners who have been in the habit of giving it in malarial districts. I think if Dr. Beeman has ever

found evil results from the drug, it must have been from idiosyncrasy of the patient, and that for the sake of conservatism he should not ascribe such evil results to its general use. I have seen isolated cases when I was convinced that morphia produced uterine contractions when given with a view of quieting the pains. It may be possible that quinine might act the same way under similar circumstances (from idiosyncrasy of the patients), just as we see strange impressions produced by the different drugs in different individuals. I think before we discontinue the use of quinine to pregnant women (that most potent antiperiodic and tonic), we should remember that to withhold it from our patients because they are pregnant, might lead to very serious results.

In conclusion, I would suggest that before we adopt Dr. Beeman's theory, he be required to furnish us stronger evidences that quinine is an oxytocic.

Very respectfully, GEO. D. GRAY, M. D.

BRYAN, TEXAS, August 9, 1877.

Dr. E. S. Gaillard:

Dear Sir,—I have seen the article copied into your Journal from the "Chicago Medical Journal," making a very grave charge against the Medical Profession of Texas.

The gentleman making the charge claims to be a Northern physician and a graduate of "Rush Medical College." He says he appeared before a Texas Medical Examining Board, was examined, submitted his Diploma, and received through the mails information that he was rejected, the fee for examination being retained. Now if he was properly rejected, he suffered no wrong by the retention of the fee. The object of the fee is to compensate the Board for the loss of time and labor performed in the examination, and not for simply granting the certificate.

It is charged that the object of the law creating the Medical Examining Boards is "to get, keep, and control the medical practice in the State of Texas." Now, this is a very grave charge against the whole medical profession of the State, for the law was the embodiment of the wishes of the Texas Medical Association, and was drawn up and submitted to the Legis-

lature by a special committee of the Association. If it be true, the whole body of the Profession can not be too severely censured. But if it be false, what punishment is adequate for the vile and anonymous slanderer who would stigmatize thousands of honorable men to gratify a malignant spite because he failed to get a certificate of competency. Let the "Chicago Medical Journal" give the name of this slanderer. This Northern physician (why parade his Northern birth but to appeal to sectional feeling), and doubtless the particular Board which did itself the honor to reject this fellow, will be able to show cause why he was rejected.

A word in regard to the appointment of the Medical Examining Boards may not be out of place here. The State is divided into about thirty Judicial Districts. The judges are elected every four years by the popular vote. With rare exceptions they are men of mature age, large experience, eminent legal ability, and incorruptible integrity. To this body of men the Legislature entrusted the appointment of the Medical Boards. In whom I ask could they more safely have entrusted this great responsibility; who would be less likely to abuse the trust? The law requires that each judge shall appoint not less than three, and as many more as he may deem prudent, well-known and experienced physicians, graduates of some reputable medical college, who shall carefully examine all candidates on the six following branches of medicine: Anatomy, Physiology, Chemistry, Pathological Anatomy, Obstetrics, and Surgery; and, if found proficient, shall grant a certificate to such candidate, and he shall be entitled to all the privileges and immunities of the Profession. It will be seen that no discrimination is made in favor of graduates of any school or theory of medicine. So far as members of the Medical Boards are known to me, they are fully representative men of the highest plain of the Medical Profession in the entire country, North, South, East or West.

Let an unprejudiced public decide between this nameless slanderer and the large body of Texas physicians, natives of every State in America and Europe, and graduates from every medical school throughout the length of the country.

Very respectfully, D. PORT. SMYTHE, M. D.

SIGEL, ILLS., July, 1877.

Dr. E. S. Gaillard:

Dear Sir,—If Dr. McCutchen, of Norwood, Ills., whose letter was published in the July number of your valuable Journal, will refer to Gross' Surgery, vol. ii, page 366, commencing at the twentieth line, he will at once see that he is not entitled to claim originality for the peculiar method of plugging to prevent epistaxis. Credit is there given by the brilliant Gross to a Mr. Green, of London, and it has, I presume, been practiced by even tyros in the Profession.

Most respectfully, P. E. CHAPMAN, M. D.

CHEMISTRY AND PHARMACY.

"Diruit, ædificat, mutat."—HOR.

Concerning Pharmaceutical and Chemical Science. By WM. A. GREENE, M. D., Macon, Ga.—Pharmacy, derived from the Greek word, pharmacon—medicine poison—is the art which teaches the knowledge, choice, preservation, preparation, and combination of medicines. Formerly, it was divided into Galenical and chemical; the former after Galen, embracing the operations medicines were subjected to without chemistry, and the latter, chemical pharmacy or pharmaceutical chemistry, comprising the preparation of medicines founded on the chemical action of their principles, and has for its object the analysis of simple medicines, and to improve the prescribing and preparing of chemical medicines and detecting adulterations. Every physician should have a good knowledge, at least, of medical or pharmaceutical chemistry, since many of the functions are of a chemical nature, and many diseases require a chemical mode of treatment, and a deficiency of this knowledge might result in the combination of two or more substances which, by forming a chemical union, might give rise to other compounds possessing very different virtues from the components taken singly, and thus the prescriber is disappointed in

the results, and even fatal consequences have followed. Science is ever on the advance, making new conquests, reaping fresh harvests, and that professional man fails to do justice to himself or his patients who neglects to avail himself of all the knowledge and means within his reach. The science of medicine has been, and is now, a growth, and consequently has not reached perfection. The main trouble with medicine is, that man was born to die, not merely of old age, but of various diseases at various stages of life. Recovering from an illness depends on several conditions, with some of which the medical man who is called in has nothing to do. He may be sent for too tardily, his advice may not be followed, and his prescriptions may be negligently dispensed, or altogether dispensed with. He can not keep ward and watch by every bedside to prevent nurses from dosing their victims into the grave. But one thing he might and must know, and it is his privilege and duty to do so, and that is, where and how to procure reliable medicines with which to combat disease. The patient properly relies upon his medical attendant for this information.

When I entered the Profession, more than twenty years ago, very young and ardent, I thought I had a remedy for all diseases, and they would "down at my bidding." But only a few months and a few patients were necessary to convince me of my error, and I have from that day to this been ever on the "qui vive" for new remedies and new appliances and instruments, and do not refuse to use any remedy whose components I am acquainted with, and some of the most valuable remedies I am acquainted with were suggested by non-professionals. The Profession, I think, will agree with me that the time has come when experiment, as a means of medical research, should be blended with experience. Indeed, we have before us no better mode of progress. The classical history of medicine is written; the classification of diseases is well advanced; the symptoms of special diseases have been so fully, so excellently described, that simple industry can enable the student to learn diagnosis with almost the precision with which he may learn anatomy. The geographical limits of disease have been most faithfully mapped out; the ordinary or descriptive anatomy of the human

body is mastered; minute anatomy is advanced as far as the skill of the optician will let it; morbid anatomy has been demonstrated until it has become a nearly wasteful repetition of labor; and surgical art, itself purely experimental and therefore positive, is so brilliantly discovered as to be in its operative part all but perfect. But there are yet many grand fields of research. Physiology is an open, wide plain; pathology lies even beyond physiology, only to be explored through it; and the fields of therapeutics and pharmacy are still so uncertain that he who advances upon it ever so little is a true benefactor to science and humanity.

With these scattering prefatory remarks, I propose to direct the attention of the busy practitioner who, perhaps, has not given the thought he should to the new and improved pharmaceutical preparations and combinations now being introduced to their notice by enterprising manufacturing pharmaceutists and chemists. I fear that too often many of us are satisfied with the routine prescriptions and remedies we have been accustomed to employ in our every-day practice for the prevailing diseases of our respective localities, and are apt to fancy our therapeutics an exact science. This it is not, and can not be. All exact sciences, except those based upon mathematics, are strictly empirical, in the sense that their laws are merely the constant results of repeated experiments, their exactness depending entirely upon the constancy of the results. While we would warn against any extravagant hopes of discovering the rationale of medicine, we do it strictly to prevent the reäction which takes place, when finally such hopes are disappointed, as they must be.

Some years ago a writer, an intelligent physician, showed how vain have been all attempts to explain the action of mercury. Yet, not he nor any sound practitioner has, for that reason, renounced its employment. It is enough, and it is all we can ask, if in many complaints a guarded and extended experience shows it is beneficial. So it must be with all medicaments, and any one who asks more than this, so far from meriting any eulogy as more scientific in thought, merely shows that he has not well considered on what basis the inductive sciences

depend, and how far it is possible for pharmacy to be reduced to exactness.

The scientific pharmaceutist is the physician's help-meet and co-laborer, his ally; and we should demand that the proprietor of every pharmacy, and every clerk who is allowed to dispense medicine, shall be a practical druggist and a graduate of some legal and reliable college of pharmacy. Among the mass of physicians very few have much idea of the art of pharmacy; in fact, many are shamefully ignorant, and think no particular manufacturer's preparation is necessary, and that the apothecary is justifiable in substituting his own or any other as good, unless it were an article of unusual importance. Not so; for I hold the physician must judge of the "importance" of the article in any given case where he is responsible for the result and action of his prescription.

Being myself, while a physician, a practical druggist, I have given this subject more than ordinary thought. I have for many years prescribed the preparations of Messrs. Reed & Carnrick, 198 Fulton street, New York, and have not in one instance been disappointed in their action. They are in all respects reliable and trustworthy, and they devote their attention exclusively to the manufacture of pharmaceutical and chemical preparations for the special use of physicians in their practice. Their long list of sugar-coated pills you can prescribe with as much confidence as any of your written prescriptions put up by your own druggist, where the combination and quantity of the ingredients suit your patient. Their fluid extracts, syrups, and elixirs I have not only found as palatable and beautifully prepared as the original drug will permit, but just as efficacious as any tincture or powder of the medicine you get from your drug stores in your midst, and frequently far more so. Their preparations are peculiarly valuable and convenient for the busy physician in the country and smaller towns, where there are no druggists, or where they are imperfectly supplied with the facilities for compounding prescriptions "secundem artem," even if they have the medicines.

It is almost an outrage on decency, to say nothing of the cruelty, to offer a patient a pill not sugar-coated nor covered with

gelatine, and thanks to pharmaceutical and chemical science, the bulky and nauseous dose of our venerable fathers is a thing of "by-gone days"; for we no longer prescribe teas, decoctions, infusions, and powders by the tablespoonful; but their virtues have been extracted in the laboratory, and we obtain far more satisfactory action with smaller doses, and even made palatable. It was just here the miserable homœopathist obtained his first and only advantage before the people. It is true there was no virtue or efficacy in his pellets, or sugar, or tincture of water; but the people, especially the delicate females and children, were charmed and enticed by their palatable physic, and no doubt thousands of cases were benefited and recovered so soon as medicines were "given up" and Nature had a chance. I would not recommend the indiscriminate use of these preparations, for most of the sugar-coated pills and palatable elixirs, fluid extracts, and syrups do not contain an atom of the drug or medicine they propose to represent; or if they do, it is inert and utterly worthless. It is very tempting in this day of dishonesty and humbuggery, even in high places, to use the advantages here so accessible for pocketing large gains. But I can confidently recommend to the Profession all these preparations manufactured by the well-known firm mentioned, whose advertisement I see in this Journal, because I have employed them in my practice for many years, and am now daily prescribing them. Besides these preparations referred to, they offer the Profession many valuable and new preparations; among them the most valuable is lactopeptine, which I consider a superior medicine to pepsine for all the diseases this remedy has been so largely prescribed. In fact, it supplies a remedy I have long felt the need of, and I prescribe it with the utmost confidence in most affections of the alimentary canal. In most forms of dyspepsia it is an invaluable remedy. In diarrhœas, especially of children, summer complaints, variously combined to suit indications. In all ailments springing from undigested food, deficient or depraved secretion of the digestive fluids. The uniformity of its composition, as well as the many combinations with other remedial agents, of which it is susceptible, makes it a peculiarly valuable, efficacious, and convenient medicine to always have

near at hand. This House is making great efforts to put it in the hands of every physician in the country, free of charge, on application for trial and experiment, and I would be glad if the Profession would address them at 198 Fulton street, New York, and put it to the severest test in diseases for which it is recommended. They openly publish the recipe and mode of its preparation, thus being neither a patent nor proprietary medicine. Concerning its combination with other medicines which do not impede its therapeutic action, I will mention that I have advantageously combined it with muriatic acid at meal times in atonic dyspepsia and irritative states of the gastric mucous membrane; also with muriate of morphia to relieve violent pain of the stomach; with strychnia to stimulate peristaltic movement; and with subnit. bismuth, lactate or iodide of iron, etc.

I will hereafter report some cases upon my note-book, not having space to do so in this paper, already too long.

Fluid Extract Kidney-Leaf Comp.—This same firm offer this new preparation to the Profession as a remedy in Bright's disease of the kidneys, and which, in the hands of intelligent physicians, has produced surprising results in this fearful and usually incurable disease, when given in time, before the cell membrane perishes in the kidney, or before the advanced stage of the disease with complications precludes all hopes of any other than a fatal termination. It has also been administered in dropsy with most beneficial and satisfactory effects. I have not sufficiently tested its virtues, to speak of my own knowledge from observation of its virtues, but enough to ask the Profession to give it a fair trial. I am now giving it to a patient—a good case for thoroughly testing it in Bright's disease—and have already seen enough to encourage both myself and patient to continue its use, and expect very great relief and perhaps cure. I will carefully preserve the notes of progress and report them at termination of treatment.

But I must close this already too lengthy paper, yet would like to refer to other preparations of Messrs. Reed & Carnrick, as their sugar-coated pills for constipation, chills and fever, neuralgia, and particularly their comp. cathartic elixir, a most

convenient and sure remedy, suitable for all ages and conditions when a cathartic is needed. All these medicines are prepared from the purest drugs and faithfully compounded, and the formulæ published in their catalogue and list, consequently no nostrum or secret remedy. I will hereafter enumerate several of their preparations, also those of other reliable pharmaceutists, and will assure the Profession that what I say about them will be founded on actual observation and experience after the severest test.

This is a department of our profession greatly neglected by those contributing to medical journals, while perhaps it is the most important, as it furnishes the tools and implements with which we mend the machine and combat disease. If I have time and opportunity during the summer months, I propose to furnish a series of papers on this subject in my imperfect and feeble way, and ask that the Profession, who use any of the remedies suggested, will give their results through Dr. Gaillard's Journals, which are the most extensively circulated of all others in the Southern States. I intend, further, to expose worthless preparations as I find them in the market, for I am convinced that the adulteration of medicines is now assuming fearful proportions, more so by far than ever before in the history of medicine.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

"Judex damnatur cum nocens absolvitur."

The Practitioner's Reference Book. Adapted to the use of the Physician, the Pharmacist, and the Student. By RICHARD J. DUNGLISON, M. D., Philadelphia, Pa.

Preface to the Work.—This is a work of ready reference, containing, in a compact and tangible shape, information of a purely practical character, that will prove a desirable addition to the medical armamentarium. The physician is frequently at a loss to know in what direction to look in order to secure such facts and hints as are here collected, some of which are widely

scattered through voluminous professional treatises or the inaccessible pages of medical periodicals; while the other original suggestions and precepts offered for his guidance will, it is believed, meet many of his daily needs. The cordial endorsement of the objects of the work, with which the author has already been favored, warrants the hope that it may become an indispensable companion as a handy book for every-day consultation. Nothing can give the reader so perfect a conception of the volume as the following extracts from the table of contents:

Introduction.—The Hippocratic oath.

General Information for the Practitioner — Weights and Measures.—Weights and measures of the U. S. Pharmacopœia; weights and measures of the metrical system; relation of weights of the U. S. Pharmacopœia to metrical weights; relation of metrical weights to weights of the U. S. Pharmacopœia; relation to measures of the U. S. Pharmacopœia to metrical measures; relation to metrical measures to measures of the U. S. Pharmacopœia; approximate conversion of ordinary measures into gramme weights; conversion of cubic centimetres into fluidrachms; number of drops in a fluidrachm; relative value of drop and minim; approximate measurements; solubility of medicines in water, alcohol, ether, glycerine, etc.; abbreviations in common use; comparison of thermometric scales.

Therapeutic and Practical Hints.—Rules for the practitioner; what the practitioner must learn of the patient; doses of medicines; doses for children; doses for young children; doses based on the weight of the patient; doses of remedies in general; maximum doses; doses of medicines administered hypodermically; doses of atomized fluids for inhalation; doses of medicines in the form of gargles; doses of medicines for collyria or eye washes; doses of medicines for injection into the urethra; doses of medicines for injection into the vagina; doses of medicines in the form of suppositories; doses for rectal suppositories; doses for vaginal suppositories; doses for uterine suppositories; doses for urethral suppositories (soluble bougies); doses for enemata; baths and how to medicate them; pharmacopœial groups, simplified for ready reference; incompatibles, or remedies that should not be prescribed in combination; what

to prescribe in the solid or the liquid form; the modern treatment of diseases; selected prescriptions from practitioners' case-books; rules for management of infants during the hot season; period of eruption of the teeth; brief rules for cases of emergency in children; eruptive fevers, a tabular view; diagnostic syllabus of uterine inflammations; obstetric memoranda; calculation of the date of labor; diameters of the female pelvis; diameters of the fœtal skull; presentations and positions of the fœtus; brief rules for clinical examination of the urine; mode of detection of abnormal constituents (albumen, sugar, bile, etc.); examination of the sediments of urine; I. Deposits found occasionally in acid or alkaline urine; II. Deposits found occasionally in alkaline urine only; III. Organized deposits (blood, mucus, etc.); poisons, their nature and treatment; classification of poisons; treatment of poisoning; ready reference table of poisons; directions for restoring the apparently drowned; to restore breathing; Dr. Marshall Hall's method; Dr. Silvester's method; treatment after natural breathing has been restored; disinfectants and their practical application; the principles of disinfection; disinfectants in common use; how to use disinfectants; places that must be disinfected, and how to disinfect them; things to be disinfected; rules for fumigation; directions for preventing the spread of infectious diseases; directions to persons in charge of the unburied dead from infectious diseases.

Dietetic Rules and Precepts.—Digestibility of alimentary substances; composition of various articles of food; relative digestibility of animal substances; digestibility of vegetable substances; dietetic preparations for the sick; special forms of diet; dietary for the diabetic; dietetic rules for reducing weight (Bantingism); rules for testing and disinfecting impure drinking water.

How to Conduct a Post-mortem Examination.—What to provide—instruments; what to observe—notes of cases; external examination; position of the body, clothing, condition, age, sex, conformation, warmth, color; anomalies—abrasions, wounds, etc.; internal examination; average weight of the various organs; incisions; order of examination; coloration and condition

of vessels; examination of the thorax, heart, lungs, larynx; examination of the abdomen, spleen, urinary organs, kidneys, suprarenal capsules, ureters, bladder, and urethra; prostate, vesiculæ seminales, testicles, etc.; uterus, vagina, etc.; duodenum, liver, gall-bladder, etc.; stomach, pancreas, etc.; intestines, etc.; examinations of the cranium, brain, orbit, optic nerve; examination of the spinal cord.

Cloth, 8vo. Price $3 50. Sent, post paid, on receipt of price. Address Richard J. Dunglison, M. D., 814 North Sixteenth street, Philadelphia.

The Second Annual Report of the Free Church Association. 1876–7. No. 1316 Chestnut Street, Philadelphia.

Smithsonian Miscellaneous Collections. The Toner Lectures instituted to encourage the discovery of new truths for the advancement of Medicine. Lecture V on the Surgical complications and sequels of the continued fevers. By Wm. W. Keen, M. D., of Philadelphia. Washington: Smithsonian Institution. 1877.

Annual Announcement of the Department of Medicine and Surgery of the University of Michigan, for 1877–9.

Excision of the Lower End of the Rectum in Cases of Cancer.

Dr. Charles F. Folsom's contribution to the Massachusett's Board of Health Report, on the "Early Management, Modern Methods," etc., in the Treatment of Insanity.

MISCELLANEOUS.

"Non omnes eadem mirantur ament que."

Growth of the Human Hair after Death.—Dr. Caldwell, of Iowa, states that in 1862 he was present at the exhumation of a body which had been buried two years before. The coffin had sprung open at the joints, and the hair protruded through the openings. On opening the coffin, the hair of the head was

found to measure eighteen inches, the whiskers eight inches, and the hair on the breast five to six inches. The man had been shaved before being buried. In 1847, a similar circumstance occurred in Mercer county, Pennsylvania. In digging a grave, the workmen came upon the skeleton of a man that had been buried ten years. The hair was as firm as during life, and had grown to a length of eleven or twelve inches.—*Ex.*

A Dog.—Dr. John Sundberg relates, in the "Popular Science Monthly" for August, the story of a pup, eight months old, without training, which (who?), when his mistress was taken ill, not only brought her a basin to vomit in, but, without being told and without her knowledge, went and brought Dr. Sundberg.—*Philad. Med. Times.*

Siemens, of Dresden, is said to be manufacturing a glass, by means of hydraulic pressure, five times stronger than the toughened glass of Bastie.

Fruit and Bread. Translated from the German of Gustav Schlickeysen by L. M. Holbrook, M. D.—This book is the forerunner of a feminine millennium, says the "Philadelphia Med. Times," when builders of ranges and cooking-stoves shall have sunk into perdition of utter ruin, and Biddy shall no longer from her fortress in the rear tyrannize over the household. Whether some misguided males will not sigh for the flesh-pots of Egypt and the slavery of Bridget, we do not dare to express an opinion upon. Cooking is to be done away with; but, owing to the hardness of our hearts, and his own great tenderness, M. Schlickeysen does not demand that it shall be abandoned at once. He says: "We must concede that it is in almost every case injurious, and that it should be dispensed with so far as our present habits of life will admit of, and with a view to its final and complete disuse."

To any of our readers who desire to learn how to make a considerable journey "with a few apples in the pocket," we heartily commend the volume. Like the doctor who said to his rheumatic patient, "Be sure and tell me if that prescription

does you good, as I have the rheumatism myself," we should be glad to hear the report. Schlickeysen is the apostle of apples and wheat, on which, *in puris naturalibus*, he is convinced the race ought to subsist. We are afraid an adaptation from "Mother Goose" would accord with the result:

Apples and wheat were the chief of their diet,
And yet the whole race would never be quiet.

MEDICAL NEWS.

'Nulla dies sine linea."

Death of Samuel Warren.—The decease of the author of the "Diary of a late Physician" can not be allowed to pass without regretful remark. Mr. Samuel Warren was made Master in Lunacy in 1850, and has not of late years been much before the reading public. His last considerable work was a novel—"Ten Thousand a Year"—but it is by the "Diary" he will be remembered. When a student of medicine at Edinburgh University nearly half a century ago, Mr. Warren obtained that acquaintance with the more personal aspects of our profession which he evinced throughout the series of papers in "Blackwood," afterwards published in the "Diary." It is impossible not to lament the loss of one who will live in memory as a rare exemplar of the art which produces pictures in words.—*Lancet.*

——The Association of American Medical Colleges consists of about twenty-five colleges. Each of these Institutions pledged itself to publish in their annual catalogues the Articles of Confederation of the Association. But five of these colleges have done so; the Medical Department of the University of Michigan; the University of Nashville; the Medical Department of the University of Louisville; the Hospital Medical College, Louisville; and the Louisville Medical College. Three of the five are Louisville Institutions. The Kentucky School of Medicine, which is only an applicant for membership, published these articles and pledged itself to abide by them.——There are no coroners in France. Persons who die suddenly are buried

on the certificate of the doctor.———The municipality of Paris have petitioned for a law allowing cremation.——The Nebraska State Medical Society has decided that popular advertising in newspapers, etc., is not contrary to the Code of Ethics!!——— The King of Sweden has conferred upon Dr. Wm. Pepper, of Philadelphia, the decoration of Knight Commander of the Norwegian Order of Olaf.——The University of London has determined to confer its medical degree upon women.——The plague in Persia is producing great desolation.——"A doctor's drummer" at Hot Springs, Arkansas, has recently been tried and convicted for "drumming" without a license. It seems, therefore, that this system of doing business, if disreputable, is at least legal, provided a "license" be obtained.——An old and standard fraud is still in force; life insurance companies apply for information in regard to physicians seeking to become medical examiners, and assert that the application of the company is made for the benefit of the physicians! Medical men are great simpletons who believe such stuff, and who give the advice asked without a just and proper fee.———Spencer Wells has performed ovariotomy nine times on the pregnant female with but one fatal result.———A preparatory medical school has been established at Memphis, Tenn. The staff is a good one. Address Dr. Heber Jones, 266 Second street, Memphis, Tenn.———The Canadian Medical Association meets at Montreal September 12th.——One of the visiting staff of the Louisville City Hospital was tried recently for cursing and striking a patient. The nurse who saw and heard it all was called as a witness. This most relevant question was asked: "Have you been a resurrectionist?" To which he replied: "Yes." He was then asked how long he had been one, and because he refused to reply he was dismissed from the hospital and lost his position, while the doctor on trial against whom the charges were made and proved was acquitted. "*Justitia fiat qui cœlum ruit.*" If the nurse had been on trial, this attempt to make him incriminate himself would have been illegal, but when simply called as a witness to testify to what he saw and heard, the effort to stain and disgrace him was wholly inexcusable; it was irrelevant, illegal, and outrageous. The whole

staff has protested and asked for his reïnstatement. —— Professor Nathan R. Smith, of Baltimore, Md., is dead. The great Webster once said in the Senate: "Mr. President, I offer no encomiums upon Massachusetts; she needs none." Well may the Profession and Press of America say likewise in regard to the distinguished dead; they offer no encomiums upon him, for he needs none.——The distinguished Dr. A. B. Crosby, Professor of Anatomy at Bellevue Hospital Medical College, died August 9th.——Cremation seems to be progressing in Switzerland. The government of the canton of Zurich has just authorized the process, which is of course to be optional, and subject to certain restrictions.

EDITORIAL.

"Nullius addictus jurare in verba magistri."—Hor.

"Our Leading Physicians."—"Our leading physicians," as they are termed by advertising Houses, are becoming very fond of giving certificates as to the efficacy of merchandise to be advertised. Whether it be a cholera mixture (with every ingredient out of solution); a pill for cholera; pepsin; milk; mineral water; fashionable pharmaceutical compounds; face lotions, etc., etc., is immaterial; so the certificates are published among those given by "our leading physicians," they are freely given. The whole system is almost as bad as that of distributing medical journals gratuitously among the laity, and that certainly makes it very bad indeed. The editor has twice, incautiously, and without thought, given such certificates in this way, and knows therefore how to make allowances for others; but is not the matter indicated a departure from the requirements of the code and the demands of fairness and propriety? This abuse has attained such proportions, and this method of advertising is believed to be so profitable that, according to one of the New York journals, physicians now visit advertising Houses and ask that their certificates should be received and published.

Charitable Institutions.—There is a growing habit among the managers and the staff of charitable institutions of distributing their annual reports among the laity; and where these institutions are devoted to the relief of special diseases, medical, surgical, or obstetrical, it must be admitted that the distribution among the laity of the reports containing the names, addresses, and special functions of the medical staff, is objectionable; it is a direct means of advertising the staff in the households to which these reports are sent. When they are distributed among congregations, preliminary to taking up collections, whatever be the object in view, it can not be denied that the advertisement thus secured for the staff is of a most effective but questionable character. Such a mode of management is almost as bad as the distribution of medical journals, by editors, among the laity. It must be admitted that annual reports of charitable institutions are generally distributed among the laity to secure pecuniary support for the institutions, and not to obtain professional support for the staff, but that the staff are thus privately advertised, and gain, of course, the benefit of such advertisements, can not be denied. Are not these facts worthy of the attention of those medical gentlemen who would not unfairly advertise themselves?

Manual for Medical Officers.*—"A need has long been felt by medical officers in the militia of a work which should give concisely and plainly the various duties pertaining to their office. That need has now been met, and the manual prepared by Dr. Forster "is an admirable résumé of all that a medical officer, whether serving in the regular army or militia, should know in order faithfully to discharge the duties which belong to his department."

NOTE.—The surgical staff of the Louisville militia or Mayor's posse will, it is hoped, supply themselves with this volume.—E. S. G.

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* A Manual for Medical Officers of the Militia of the United States. By Edward Jacob Forster, M. D. New York: Hurd & Houghton. 1877. Pp. 102.

RICHMOND AND LOUISVILLE

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ORIGINAL COMMUNICATIONS.

"Qui docet discit."

ART. I.—*A Case of Angina Pectoris, with Intercurrent Prostatitis and Death.* By M. E. POYNTER, M. D., Midway, Kentucky.

I was sent for on March 4th, 1876, to see Mr. N. E. M., aged eighty years, a soldier of the war of 1812. I found him suffering from intense, and he said, unendurable pain in his chest, in the region of the heart, accompanied by symptoms of impending suffocation.

I have known him for fifteen years, and attended himself and family when medical services were needed for that length of time, and saw him almost daily, as he was in the habit of coming to town, a distance of three miles, almost every day, and was surprised at the suddenness and severity of his attack, as I had seen him apparently well the day before this attack. When I reached the house the severity of the attack had worn off, but he assured me that his suffering was so great that he feared he would die before I could reach his residence, although I was with him in a little over an hour after his messenger was dispatched. The attack came on after walking about his farm, feeding stock, etc. He told me that on the day before, whilst walking in Midway, he had a similar seizure, though of much shorter duration and far less violence. During the time occupied in giving me this history his pains and suffering entirely left him, and he said he felt as well as he ever did in his life.

Before giving a statement of examination and diagnosis, it may be well to premise by giving an outline of his general history and physical condition.

Although four score years of age, Mr. M. was, and always had been, a remarkably robust and active man. His weight was about 180 pounds, height five feet nine inches. His chest and limbs remarkably sound and muscular, and his strength and activity had always excited comment. He had never been sick since our acquaintance, excepting on two occasions; during the winter of 1873 he had pneumonia of the right lung, and also again one year later, from both of which he recovered, and in which he appeared as susceptible to treatment as a boy of ten years.

The only history he gave of any other illness was that of strumous caries of the lower end of the right femur in childhood, which left its characteristic scar, and from which he walked a little lame.

Upon making a physical examination of his chest, I found nothing abnormal whatever in the condition of his heart or lungs or their appendages, and as he was eructating gas freely from his stomach during the time of my visit, and as the thoracic organs gave no sign of disturbance, I supposed the attack probably arose from acute indigestion, and the sharp pain to be due to distension of the stomach, which by reflex action was transmitted to the heart by the peculiar arrangement of the pneumogastric nerve. I therefore gave him the following prescription:

℞—Spt. Æther. Sulph. Comp, f℥ ij;
Syr. Zinziber;
Aquæ Camphoræ āā f℥ ss.
M. et. Sig. Teaspoonful every half hour during pain.

Two days afterwards, March 6th, I was again summoned hurriedly to visit him, and again was too late to witness the acute suffering which he described to me as having endured. He told me that on the day before he had suffered no attack, but felt as well as he ever did in his life. He had taken the medicine left for him only during the attack of the 6th, and as it had worn off by the time of my arrival, I supposed it was

efficacious in relieving him, and directed its continuance for some hours, and to avoid every thing in his diet that might possibly derange his digestion.

In half an hour he had entirely recovered, and expressed himself as feeling perfectly well again.

On the 7th he was again seized, and the messenger was sent at the very outset of his attack, and I arrived before it had worn off. I found him sitting up in bed gasping for breath and apparently suffering the most agonizing pain, which he referred to his heart, and the sense of impending death so great that it was almost impossible to reässure him. The respiration was labored, the countenance anxious and wild, the pulse full, though soft, and the face and neck bathed in perspiration. Exploration of the chest developed nothing abnormal whatever.

To relieve his great suffering I at once gave him morph. sulph. gr. one-third hypodermically, which gave him entire relief in five minutes.

Again he portrayed in most forcible language the fearful character of the pain, telling me that he felt as if "some one were prizing his breast bone off with a crow-bar," or like his "whole chest was being clasped with the force of a giant by iron grapnels, such as hardware merchants use in handling nails." He was soon perfectly at himself again, and felt entirely well. I neglected to say that he had been so certain that he was dying that he had sent for his only daughter in an adjoining county.

Upon reflection I was forced to abandon my diagnosis of dyspepsia and review the whole case.

Remembering his great age, and the fact that his attacks followed walking or any active exercise, and the great suffering he endured, together with the sense of impending death, the dyspnœa, the location and peculiar description of the pain, I pronounced his malady angina pectoris.

His health in every other particular was remarkably good, and in the interval between his attacks "felt as well as he ever did in his life."

I cautioned him against walking or any exercise that would excite the circulation, and especially riding on horseback, ex-

plaining to him the nature of the trouble and its very grave import.

He had an attack again on the 9th similar in every respect to the others, in which I again administered the morphia with quick relief. Having sent for Dr. D. D. Carter, of Versailles, he soon arrived, and in consultation fully agreed with me in diagnosis. We gave him the following:

℞—Tr. Aconit. Rad., f℥ ij;
Tr. Belladonn, f℥ iij;
Tr. Digitalis Fol., f℥ ij;
Aquæ Camph., f℥ iij.
M. et. Sig. Teaspoonful every four hours.

March 10*th*.—A much longer attack than ever before. Usually they have lasted only from half an hour to an hour (the first one, on the street, was but a few minutes); this held him for an hour and a half. Says he had a slight seizure during the night, and has sat up in his chair ever since, fearing he would die if he should lie down. The morphia treatment again brought almost instant relief, and as soon as the pain abated the graphic description was minutely repeated, and diagnosis confirmed by every circumstance.

He was directed to continue the prescription of the preceding day, which he did, and by attending closely to directions in regard to walking or any violent exercise, he had only very slight seizures during the next three months. During this time, however, he had frequent light attacks, and the prescription of the 9th of March was alternated with the following on June 5th: ℞—Elix. grindelia robusta, ℥ iij. Sig. Teaspoonful every three hours, as the dyspnœa was then the most prominent symptom.

June 10*th*.—The attacks are more severe, and he does not lie down at all during the night. Gave the following:

℞—Tr. Aconite Rad., f℥ iij;
Tr. Belladonn, f℥ vj;
Fl. Ext. Humul. Lup., f℥ ij;
Fl. Ext. Cannabis Ind., f℥ ij;
Glycerinæ, f℥ j.
M. et. Sig. Teaspoonful every four hours.

During the next ten days he suffered but slightly, so little indeed that he told me he was inclined to think my diagnosis incorrect, as he felt so perfectly well between the intervals of attack, and could not think the prognosis so very grave as I had supposed. On the 20th of June I saw him again on the street; he had only suffered slight attacks, as he had taken extraordinary precautions against undue exercise, but told me he had begun having these light attacks during his sleep, always sitting in a reclining chair. At this time I gave the following:

℞—Elix. Grindelia Robusta, f℥ iij;
Tr. Aconite Rad., f℥ ij;
Tr. Belladonnæ, f℥ iij;
Aquæ Camph., f℥ iij.
M. et. Sig. Teaspoonful every four hours.

This combination of remedies had seemed to be of more benefit to him than any other, and he constantly took it, and had no other serious trouble again until the 18th of July, when the attack was quite severe and of long duration. I employed the morphia hypodermically, and soon procured relief. He followed his old prescription, and had comparative ease until November 1, at which time the symptoms returned with all their former intensity and severity, after an incautious ride to town on horseback.

I will here remark that since the severe attack of July 18th, he has had no doubt of the correctness of my diagnosis and prognosis, and on the return in November suffered the same painful premonitions of impending death (which he said would be a relief, as his sufferings were so intense) that he had at the outset of the malady. From November 1st to the 6th he suffered with one or more violent attacks each day, during which, if I saw him in time, he was relieved by the injection of morphia, and when I was not there he relied upon the aconite and belladonna prescription, which, however, seemed to do him little good.

During these days when the excruciating pain had worn off, it left him suffering a most painful dyspnœa, to relieve which I gave him the following on the 6th:

℞—Atropiæ Sulph. gr. ss.;
Aquæ Rosal f℥ iv.;
M. et Sig. Teaspoonful every four hours.

He took the first dose of this at 12 M. on the 6th, and at 4 P. M., after which he was in a state of wild delirium during the remainder of the night, and very restless and excited; his breathing, however, had become perfectly normal. The family had stopped the use of the drug and sent a messenger for me about 3 A. M., of the 7th. Upon arrival his excitement and jactitation were so great that I at once gave him morph. sulph. grain one-half, hypodermically, and in five minutes he dropped off into a sweet sleep, which was kept up most of the time until noon, though he was easily aroused and quite rational. Finding that he had passed no urine since the morning of the 6th, I insisted on using the catheter on the morning of the 7th, but he refused; at noon I attempted it, but found it impossible to reach the bladder with the silver instrument of my pocket-case, owing to the enlargement of the middle lobe of the prostate.

I sent for English and French elastic catheters, and also the soft flexible Nélaton catheter and the jointed instrument known as Squires' catheter, all of which failed to pass beyond the obstruction presented by the middle lobe. I left, hoping that by night, with rest and a warm hip-bath, I might succeed. Upon my return late in the evening I brought with me Dr. R. S. Seeley, of this place, and we made faithful efforts to introduce these appliances, but with signal failure to do so; although no difficulty was experienced in passing a No. 12 bougie or catheter through the urethra, the point would not pass the solid obstruction of the prostatic enlargement, which appeared, by manipulation through the rectum, to be as large as a goose egg, and very firm. No other alternative presenting, we determined to aspirate over the pubes, which was accordingly done, relieving him of about three pints of very high-colored but otherwise normal urine. I neglected to note the fact that during my absence he was persuaded by a neighbor to swallow a dessert-spoonful of spirits of turpentine, which not only made the distressing tension of the bladder greater, but inflamed the prostate, as I found the meatus urinarius glued up with a clot of

blood before any attempt at catheterization had been made. This operation was repeated on the 8th with entire success.

His dyspnœa being entirely relieved, and having no return of the active symptoms of the angina, he took no medicine other than a demulcent drink of flaxseed.

November 9th—Morning.—Patient resting well, and expressed great relief from the emptying of his bladder on the previous evening. Pulse soft and a little full; tongue dry and heavily coated; skin moist; has had no action from bowels in forty-eight hours. Gave calomel and quinine (grains ij ad. v), to be repeated every six hours. Attempted to pass catheters of different kinds, but failed.

Evening.—Returned with Dr. S., expecting to be compelled to aspirate the bladder again. Symptoms much the same. After trying the Nélaton and Squires catheters and failing, I took a No. 12 English elastic catheter, armed with a steel wire, and curved it on the wire as abruptly as possible, so that the arc would describe a circle of not more than two and a half inches; bending the end of the wire until its point stood at less than a right angle to the shaft. Of course the gum tube, having a larger calibre, did not represent so sharp an angle as the wire. By taking such an armature in your hand you will readily perceive the object. Hold the wire steadily with your right hand (having laid the apparatus on a table) and gently push the tube off the wire, and you will find that the point will return in the direction of the shaft, making quite a small circle. I passed this instrument easily down to the middle lobe of the prostate, then withdrew it half an inch, so as to clear its promontory, and holding the stylet firmly, pushed the catheter forward, and found it to glide readily and easily into the bladder. This I regarded as an important discovery, and felicitated myself no little on its success. Any one, by examining a cut to be found in Ashurst or Hamilton of enlargement of the middle lobe, will see at a glance why this device became necessary to overcome the pocket-like obstruction formed by the projection of the globe-shaped promontory.

I visited him night and morning for several days, and had no difficulty in the world in passing a No. 12 catheter by the above

method. He seemed to improve so rapidly, and having no anginose trouble, I consented, at his request, to allow a neighbor to attempt the use of the catheter, and suspended my visits. He had seen my method, and attempted it on the morning of the 16th, and succeeded in entering the bladder. During the day the old gentleman (who had a bad case of paralysis agitans) insisted on trying to introduce it himself, and persisted in fruitless efforts for hours, which was supplemented afterwards by very persistent manipulation on the part of the neighbor, who, it is unnecessary to say, did not succeed. I was again summoned, but finding the organ covered with blood and very sore, did nothing but enjoin rest and a hot hip-bath, followed by the application of hot-water dressing to the inflamed and much abused penis.

November 17th.—Had rested quite well and felt something better. Attempted the introduction of the catheter and failed by any method I could devise, as he was quite tender and the mucous membrane bled very readily. I did not hesitate again to use the aspirator, and relieved him of more than a quart of very offensive urine, the last of which was mixed with bloody matter. His symptoms now grew rapidly worse, displaying a great deal of restlessness and jactitation, loss of appetite (living on buttermilk alone), and was evidently suffering from uræmia or septic poison. The tongue was very heavily furred and very dry; was quite thirsty, and slept a good deal. Refused persistently to take any medicine whatever; but when awake his mind was perfectly clear, and remained so until within a few hours of his death.

After the aspiration of the 17th no difficulty was experienced in passing the catheter into the bladder by the method I have described, and it was allowed to remain *in situ* each night. Upon each fresh introduction the first water was nearly normal urine, but as the bladder emptied itself and I pushed the catheter further, the collection at the base would be the last drawn, which was a very dirty-colored and exceedingly offensive pus and urine. About the time of the introduction of the aspirator needle on the 17th a considerable puffiness of the skin was observed around and over the pubic arch, but unac-

companied by redness or undue heat. It was treated simply by hot fomentations.

Without detailing the occurrences of each day, it will suffice to say that no material change occurred from that time until the 25th, eight days from the last aspiration, when he died. The catheter was introduced each day and the same character of fluid withdrawn. The treatment consisted in using a carbolized wash (℥ij ad. oj), first through the aspirator on the 17th, and every day afterwards through the catheter.

On the afternoon of the 25th, about eight hours after death, I was permitted an autopsy, in which I was assisted by Drs. D. D. Carter and R. S. Seeley, and Mr. Warren Stitt, a student of Dr. Carter. The bladder was empty, having left a catheter in it during the last twelve hours of his life, the mucous membrane was inflamed and thickened, though much disorganized; the prostate was very large and firm, and the middle lobe formed a rounded, firm mass just behind the urethral opening, which acted as a valve when the bladder was full, effectually closing the outlet. The more fluid the bladder contained, the tighter would this valve hold it. The cut in Hamilton and Ashurst, before referred to, beautifully illustrates the case as we found it. The wall of the bladder, especially at the base, was very much disorganized, and tore very readily. The inflammation was more marked in the middle lobe of the prostate, as it furnished the target against which so many deadly shafts were forced to recoil. We also found an abscess containing a considerable quantity of offensive pus between the anterior surface of the bladder and the abdominal muscles below the peritoneal reflection, but having no connection whatever with the bladder, and probably caused by the needle of the aspirator on the 7th and 8th, nearly three weeks before. On these occasions the needle was withdrawn after the operation without observing the precaution of closing the distal end of the needle after detaching it from the aspirator, thus allowing the possibility of a drop or two of urine to escape into the tissues as it was being withdrawn. This abscess certainly had no connection with the pus drawn from the bladder for the last week; besides, having no visible outlet, the catheter left in the bladder during the last

twelve hours had drained every drop of urine and pus from it, but this abscess was full and contained fully a pint. The other was evidently furnished by the prostate and base of the bladder.

Of course we were anxious to examine the heart to find, if possible, some pathological change which might throw some light on the obscure subject of angina pectoris, the pathology of which is yet so little understood. The heart was in its normal relation to the surrounding parts; no adhesions of the pericardium and no fluid in that sac. The heart appeared very large and covered almost entirely by fat. The aorta looked almost twice the ordinary size, and all the vessels were correspondingly large. After emptying it thoroughly and cutting away vessels it was found to weigh seventeen ounces, nearly double the standard given in most authors as the normal weight.

The relative size of the cavities was well maintained, and so of the thickness of the walls. It did not appear to be hypertrophied, nor was there any indication of dilatation; it simply presented the characteristics of an enormously large heart. The aorta was fully one and a quarter inches in diameter, and the other vessels correspondingly large. The valves closed well and appeared healthy, save a little protuberance, one line in length, on one of the semi-lunar valves. Without microscopic inspection, the heart could not be said to be fatty, and as he had maintained robust health and strength of body and mind, I do not suppose it was so. The coronary artery on one side was cheesy and chalky in places; on the other, hard and bony for more than two inches of its course.

ART. II.—*Errors of Refraction of the Eye—Their Diagnosis and Treatment.* By T. E. MURRELL, M. D., Little Rock, Ark. [Read before the Arkansas State Medical Society at Hot Springs, May 2, 1877, and ordered to be published.]

Improved methods of investigation lead to new discoveries in every branch of medicine; and it is within the last score of years, since Hemlholtz's invaluable addition to our means of

exploring the eye, that the phenomena of defective vision have been scientifically classified and explained, and successful methods of treatment adopted.

It is only since the introduction of the ophthalmoscope that it has been possible, in a large class of cases, to make a differential diagnosis between the pathological conditions of the intra-ocular tunics giving rise to obscure vision, and that other class, purely physiological, dependent on some asymmetry of the refractory media, and rational means instituted for their correction. Amaurosis and amblyopia, formerly occupying such conspicuous places in the catalogue of eye troubles, have become almost obsolete terms in the new and more expressive nomenclature.

In a large portion of the cases of so-called amblyopia the defect of sight is due to some error of refraction, and the proportion of such cases increases with a more extended observation and careful investigation of the subject, and the dissemination of a certain amount of intelligence and confidence among the laity, inducing them to consult the specialist for those vague and slighter troubles to which they had become reconciled as irremediable.

Although the eye, when perfect in its construction, is the most perfect optical instrument known, the frequency of abnormality in this respect gives rise to various annoyances in the way of imperfect or painful sight; and a knowledge of this fact would often save the physician from embarrassment, his remedies from disrepute, and his patient from a long and harassing treatment.

I purpose giving a brief anatomical description, with the symptoms and mode of correction by lenses, of the three principal divisions of faulty refraction, illustrating each class with a few typical cases appended.

The normal or emmetropic eye is nearly round, and is so adjusted that the combined effect of its different refracting media, when in a state of rest, shall cause parallel rays of light entering the eye to meet just on the retina, the cornea refracts so near alike in all its meridians as to make no appreciable difference in the acuteness of horizontal and vertical lines; and the sectors of

the lens so perfectly harmonize as to produce no blurring or irregularity of the image. This eye will give perfect vision for all required distances until the commencement of presbyopia, about the age of forty-five years, when convex glasses will be required for near vision.

There is a condition in which glasses are not required for reading until a very advanced age, and probably never required. This occurs in moderate degrees of myopia, the first departure from emmetropia that will claim our attention.

The myopic eye is too long in its antero-posterior diameter, causing parallel rays of light on passing through the dioptric media to be excessively refracted, and to cross before meeting the retina, producing circles of diffusion instead of sharply defined images. In order to focus at the proper point, they must enter the eye divergingly, and hence the object must be approached to the eye. The farthest point at which a small object can be distinctly seen constitutes the degree of myopia expressed in a fraction; if at twelve inches, one-twelfth; if at six inches, one-sixth, etc., and the glass that corrects it by the same fraction preceded by the sign minus.

The near-sighted eye, contrary to popular opinion, is a weak eye, and in all high degrees eventually becomes diseased. It nearly always progresses in degree from youth to age, so that a moderately myopic eye in childhood will most probably be excessive past the meridian of life, and vision often so much impaired as to destroy its usefulness, or even constitute total blindness. It is also congenital and progressive with each successive generation. Posterior staphyloma with detachment of the retina, choroiditis, disc atrophy, and opacity of the lens, are some of the pathological conditions found in high degrees of progressive myopia giving rise to blindness.

As just shown, a moderate degree of myopia is, in some respects, an advantage, obviating the necessity of spectacles for reading until an advanced age. A myopia of one-tenth or one-twelfth is not peculiarly liable to lead to disease, and the far point being within the limit of distinct vision for ordinary print, spectacles are never required for reading, thus accounting for those apparently strange cases of very aged persons reading the smallest print without the aid of glasses.

Moderate degrees of myopia may be entirely neutralized for distant vision, the person leaving off glasses when reading; but high degrees, and by high degrees I mean requiring a $-\frac{1}{6}$ lens, or greater, for distance, will not admit of total correction for two reasons: First, total correction renders the image sharp and clearly defined, but very small, and owing to the fact that the posterior staphyloma, seldom absent in these cases, causes a stretching and separation of the retinal elements, more or less amblyopia always exists, interfering with the recognition of very small images; and, second, since total correction fits the eye only for distant vision, the fixing of near objects, constantly necessary, places a strain upon the accommodation which should be sedulously avoided, as leading to an increase of the trouble. Such an eye, then, should be furnished with a glass only partially neutralizing the faulty refraction for distance, and should wear no glass whatever for reading, as there is generally monocular vision and an approach of the book within four, five, or six inches of the eye does not necessitate any strain of convergence. The danger in such cases, and the fault with opticians, is in giving too strong glasses, thereby necessitating too much labor of accommodation and convergence, which induce congestion of the vascular tunics of the eye and hasten the progress of the morbid processes.

There is another condition in which convex glasses are required for reading before the period when presbyopia usually manifests itself, and in some instances are necessary even in childhood. In this condition, known as hypermetropia, the antero-posterior diameter of the eyeball is too short, giving rise to deficient refraction, and, as a result, parallel rays of light entering the eye with relaxed accommodation fail to meet on the retina, but would meet somewhere beyond if produced. This being the case, there is necessity for constant tension of the accommodation even when looking at a distance to avoid circles of diffusion on the retina; while for near vision this tension is greatly multiplied, eventually leading to pain and distress in the eye, and finally yielding of the ciliary muscle with a consequent dispersion of the image. This condition, designated asthenopia, is generally the first symptom to point to the existence of the anomaly.

The age at which it comes on depends on the degree of hypermetropia with other modifying influences, but, as a rule, the age in years corresponds with the whole number in the denominator of the fraction, hypermetropia being expressed as myopia with the plus instead of minus sign before the fraction.

Hypermetropia is divided into latent and manifest, the division being dependent on the degree and age of person. A moderate degree will be latent in youth and manifest in adult age, while a high degree will be manifest in youth, or even in childhood. It is latent so long as convex glasses can not be worn for distance, and manifest when they can. The manifest is again subdivided into focultative, relative, and absolute, the last being that excessive degree in which the person is unable to focus even parallel rays. The higher degrees are those that give rise to the most trouble in reading, while the moderate degrees stand as pathogenesis to convergent strabismus. The active accommodation of youth will conceal a considerable amount of hypermetropia, but the constant strain of the ciliary muscle, if the child is at school, will eventually give rise to troublesome asthenopia. After reading some time the letters blur and run together, but are distinct again after looking away a moment. They now blur sooner than at first, and the period of comfortable reading grows shorter after each successive effort until the print is so confused, or there is such a disagreeable sensation about the eyes that the book must be laid aside for a longer rest. If the effort is persisted in the eye becomes red and watery, sensitive to the light, and perhaps spasm of the accommodation will ensue, causing it to simulate a case of myopia. The optometer will probably give no information as to the state of refraction; type is read at the usual distances; but, on examining the eye with the ophthalmoscope by the direct method, a diagnosis can be made with the most positive assurance. On paralyzing the accommodation with atropine, the optometer will render valuable service; but since the effects of a strong solution of atropine are neither pleasant nor evanescent, one would hardly be justified in resorting to it in every doubtful case. If the cause is not discovered, the trouble grows worse; glasses may be tried without benefit; the family physi-

cian advises tonics, electricity, and hygiene without improvement; the parents are advised to stop the child from school; an improvement at once takes place; books are resumed, and the same train of symptoms comes on as before.

Such cases in children are often most annoying, and although they will frequently not tolerate glasses at first, this is the only means of relief. The judicious selection of glasses with atropine to paralyze the accommodation when necessary, and the constant use of the proper glass, when found, for close seeing, is the only way to overcome these cases of asthenopia. If asthenopia does not come on until a more advanced age, it is generally very easily corrected, and the proper glass selected without difficulty. When the hypermetropia is absolute, glasses are required both for distant and near vision. Absolute hypermetropia is in some instances very liable to be mistaken for myopia, since the book is held very close to the eye in reading. This is done to magnify the letters, the increase in size being in greater ratio than the diffusion of the image as the object is approached to the eye. Since the hypermetropic eye is an imperfectly developed eye, being frequently associated with arrest of development in other parts, it is often amblyopic, and perfect vision can not be attained by any optical appliances.

Frequently existing separately, but oftener associated with one or other of these two errors of refraction just described, is another condition that is not aided by either convex or concave lenses. It is known as astigmatism, and, though first pointed out nearly a century ago, is still a novelty to most persons outside of special practice.

The cornea is never the segment of one sphere, but of many spheres having different radii, thus slightly approaching a conical form; and, moreover, these segments being slightly ellipsoidal at their bases and corresponding throughout the series, cause a slight difference of curvature in the two opposite meridians. As a rule the greater curvature corresponds to the vertical, and the less to the horizontal meridian. No eye is entirely free of this condition, but it is only when the asymmetry is considerable that it gives rise to inconvenience. As can be readily understood, rays of light passing through the

two opposite meridians will not meet at the same focal distance behind the lens, the greater refracting surface uniting them sooner, and the less later.

As a necessity, when one meridian is in focus, the other produces circles of diffusion and overlapping of the image, thus marring the perspicuity of the object. Vision is never sharp in this condition, and efforts at reading bring on weariness, and in time asthenopia with its attendant train of symptoms. A case presents with defective vision existing from childhood. Efforts at reading cause the eyes to tire. The book is held closely, and there is nipping of the lids. No history of inflammatory troubles can be obtained. The refracting media are clear, accommodation active. Concave glasses are tried without benefit; convexes are no better. A diagram is held off a few feet with a number of black lines of equal size and distinctness radiating from a common centre; in one meridian a deep black line is seen, while the others are indistinct. Here then you have a case of astigmatism, and all anxiety about nerve atrophy and amaurosis is at an end. The proper glass will give good vision, and the correction is based on purely physical principles; a glass being adapted to the eye that will so deflect the rays in the faulty meridian as to enable the ocular refracting media to unite them at one common focal centre. The faulty curvature may correspond to any meridian from 1° to 180°. When one meridian of the eye is myopic or hypermetropic and the other normal, it constitutes *simple astigmatism*, and is corrected by a glass concave or convex in one meridian and plane in the other; when all the meridians are myopic or hypermetropic, but one greater than another, it constitutes *compound astigmatism*, and is corrected by a spherical concave or convex, combined with a cylindrical; and when one meridian is myopic and the opposite hypermetropic, it constitutes *mixed astigmatism*, and is corrected by a cylindrical concave combined with a cylindrical convex placed at right angles to each other, and to the corresponding meridians of the eye.

There is another form of astigmatism, the irregular, due to congenital asymmetry of the sectors of the lens, or, most generally, to acquired alteration of the cornea, that will admit of none, or, at most, only partial correction.

Astigmatic troubles are more liable to be overlooked or mistaken for amblyopia than any other condition of refraction causing imperfect vision. It often gives rise to the most painful asthenopia, and sometimes chronic conjunctivitis. The asymmetry has never been suspected; spectacles have been tried without benefit; the conjunctivitis has persisted in spite of remedies; the case is given up as incurable and all treatment abandoned. As a better means of illustrating these anomalies of refraction, I will now introduce a few typical examples taken from my case book.

Effects of a high degree of Myopia.—A. R., aged twenty-three; vision good until thirteen years old, when left eye began to fail. Has gradually grown worse until now can barely distinguish the outlines of large objects with this eye. Considerable amblyopia of right eye. Get strong myopic reflex from fundus, and find large choroidal atrophy with posterior staphyloma in left eye and thinning of choroid with atrophic crescent on outer disc in right eye. Vision was too defective in left eye to ascertain the degree of myopia, but in right eye found a myopia in the vertical meridian = 1-6th, and in the horizontal = 1-10th, being a case of myopia of 1-10th combined with astigmatism of about 1-16th. Advised great care of right eye, and to wear a $-\frac{1}{10}$ s. glass if he wished to see at a distance, but none for close work. Did not correct the astigmatism, which would have further improved vision, as he was not favorably impressed with glasses, on account of the diminished images further aggravating the existing amblyopia.

Hypermetropia with Spasm of Accommodation Simulating Myopia.—D. T., aged 22 years; could not read without much discomfort; a sense of tension coming over the brows with pain in the eyes. Went to an optician, who could not suit him with glasses, and sent him to me. He holds print close to read. With optometer finds but little play of the accommodation, and both the far and near points much closer than normal. Here then were the symptoms of myopia; but on looking at a distance concave glasses did not improve vision; neither did convex. With the ophthalmoscope a distinct erect image of the retinal vessels was seen at about fourteen inches

distance, showing conclusively deficient refraction of the eye. The case now resolved itself into one of hypermetropia with spasm of the accommodation growing out of constant strain of the ciliary muscle to focus near objects. I wanted to paralyze the accommodation in order to overcome the spasm, but he would not consent, and so went away without glasses. This spasm will eventually yield to asthenopia with loss of accommodatory power, when the hypermetropia will become manifest, and glasses can be selected without resorting to atropine.

Asthenopia in Youth from Hypermetropia.—G. F., school girl, aged 15 years; complains of inability to get her lessons without her eyes becoming tired, weeping, and the light hurting them. She has stopped school on this account. Reads Jaeger No. 1 at one foot, but can not read it at six inches as she ought to do at her age. Reads considerably beyond focal distance of lens of optometer, and with + 1-30th glasses reads Snellen 20-20th. By direct method of examination get hypermetropic reflex. Fundus healthy, excepting hyperæmia of optic disc and retina, which is common in these cases and accounts for the photophobia. With manifest hypermetropia = 1-30th at her age, there was evidently considerable latent hypermetropia, and hence I prescribed + 1-24th glasses to read with, and have heard no more complaint.

Absolute Hypermetropia with Ciliary Asthenopia for Distant and Muscular Asthenopia for Near Vision.—G. M., aged 30 years, stencil-cutter; uses + 1-14th for work, but eyes tire after an hour's close application. Trial with lenses shows manifest hypermetropia = 1-12th, this number of convex glass giving him best vision for distance. With + 1-10th type does not blur so soon, or eyes tire at work so quickly as with + 1-14th, but there is a sense of tension about the eyes after using them at close work, and I infer muscular asthenopia, which is proven by trial with prism, demonstrating insufficiency of internal rectus.

He states that his eyes tire after fixing them intently on an object at a distance, as at theatre, the refraction of the eye being so deficient as to require great tension of accommodation for parallel rays. A + 1-10th glass combined with a prism with base turned inward will give comfortable near vision at present,

and a + 1-12th will enable him to see well at a distance without fatigue.

Paralysis of Accommodation in a high Degree of Hypermetropia mistaken for Concussio Retinæ.—A colored woman, aged about 21 years, came to my office for partial blindness in one eye, resulting from a stroke on the eye by the hand of a comrade in a struggle. She saw very dimly out of it, everything apparently enveloped in a fog. There was no inflammation of conjunctiva, or cloudiness of cornea. Pupil semi-dilated and sluggish. Could not make out the largest letters of Snellen at twenty feet. I inferred some intra-ocular injury, but one xamining with the ophthalmoscope found the fundus healthy and dioptric media clear; neither was there any evidence of dislocation of the lens, either by peripheral reflection or tremulousness of the iris, a condition I suspected from the character of the injury, degree of sight and hypermetropic reflex. I was about to infer concussion of the retina when the strong hypermetropic reflex with enlarged pupil suggested a high degree of hypermetropia with paralysis of the accommodation. On holding a + 1-12th lens before the eye, she saw perfectly at a distance; this at once establishing the diagnosis.

Absolute Hypermetropia in Childhood mistaken for Congenital Amblyopia.—W. H., aged 52 years, farmer; could not see sufficiently to read when a boy, and was debarred from obtaining an education on this account. In after years he found that very strong convex glasses improved his sight, and now uses + 1-5th, but trial with test type shows near vision very defective with this number. I found considerable amblyopia, as is always the case in so high a degree, but a + 1-4½ gave best distant vision for right eye, and + 1-4th for left eye, while a + 1-3½ gave best near vision for right eye, and + 1-3d for left eye. As the eyes will not tolerate images that differ more than 1-40th, I prescribed for both eyes + 1-4½ for distant and + 1-3½ for near vision. I suspected aphakia, but the amount of accommodation showed this could not be the case. A degree so high as this is rarely met with, being equal to the emmetropic eye without a lens.

Simple Hypermetropic Astigmatism mistaken for Myopia.—Miss G., aged 16 years; has always read with an effort. She

holds print close and nips lids. She came to me with her own conviction and the assertion of her mother, that she was near-sighted. On examining the refraction, I found an oval disc with an erect image of the vessels running in the horizontal meridian. There was then hypermetropia in the vertical meridian, and with + 1-20th cylindrical glass, with its axis placed at 180°, vision rose to the highest point, both for distance and for reading, enabling her to read Jaeger No. 1 at one foot, whereas before she could barely make out No. 4 at this distance. This case is an exception to the rule that the greater curvature corresponds to the vertical meridian.

Mixed Astigmatism simulating Myopia with Amblyopia.—Mrs. K., aged twenty-four, has never seen well, nor been able to obtain glasses that would render her vision good. Has used much medicine both internally and locally for eyes under advice of physicians without improvement, and had come to the conclusion that she would eventually become blind. Holds book very close, and has a peculiar way of nipping lids. Has to stoop forward with her face close to her music at piano in order to read it. On looking at the fundus, could at once assure her of the needlessness of her fear of becoming blind. Fundus healthy, but there was indistinctness of the retinal vessels in one meridian when those in the opposite meridian were in focus. After the usual process for working out such cases, I found in right eye hypermetropia = 1-20th at 45°, and myopia = 1-36th at 135°; in left eye hypermetropia = 1-20th at 140°, and myopia = 1-36th at 50°. With + 1-20th c. $\overline{|-\frac{1}{36}}$ c. 135° for right eye; and + 1-20th c. $\overline{|-\frac{1}{36}}$ c. 50° for left eye, the axes being set by convexes, she saw as she had never seen before, and expressed the greatest delight. She got these, and can now read music over the shoulder of another person playing at the piano.

Astigmatism giving rise to Chronic Conjunctivitis; Cured by Cylindrical Glasses.—W. H., aged twenty-one; student; has had troublesome sore eyes for years. Has been treated time and again with blue stone and other local remedies without permanent benefit. When he came to me the palpebral conjunctiva presented much the appearance of a mild case of chronic gran-

ular ophthalmia. I treated the lids locally a short while, with slight improvement when he went away. After four months he returned no better. Said he was examined while away by one laying claims to qualifications for special practice, who told him something was growing over his sight which he could remove with his medicines.

As he was coming to Little Rock again very soon, did not try this gentleman's magic eye drops. At second visit I found the cornea clear, and on testing the amount of vision was led to suspect astigmatism. As result, I found in right eye hypermetropic astigmatism = 1-40th at 90°, and in left eye myopic astigmatism = 1-16th at 150°. Vision at once rose to normal with the correcting cylindrical lenses, which I ordered for him.

He returned to school, and has been able since to keep up his studies without intermission, a thing he could never do before. After some weeks he wrote me that his eyes were well.*

Astigmatism giving rise to Violent Asthenopia.—Mrs. M., aged thirty, has been annoyed with weak eyes since girlhood, and has never known what it was to read with comfort long at a time. Of late has almost given up reading, and has been using various local applications to stimulate the eyes. Can look but a few moments at an object without a peculiar weariness coming over her eyes, necessitating shutting and rubbing them. I attributed these symptoms to the astigmatism which I found in each eye of a degree which generally gives rise to annoyance. In right eye there was myopic astigmatism = 1-36th at 180°, and in left eye at 50°.

As she did not care to wear glasses on the street, I ordered

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* Since writing the above I have met with Mr. H., and find his conjunctivitis entirely gone. His first remark was, "I suppose you notice a great change in the appearance of my eyes?" "Yes," I replied. "Well," continued he, "they are better now than they have been for fifteen years. I wear my glasses constantly at school, and would not part with them for any consideration."

I would also state that, since preparing this paper, I have learned that Professor Roosa, of New York, has reported a number of cases of blepharitis due to errors of refraction, and which were cured by the use of glasses. I have not seen his paper.

for her right eye + 1-36th c. 90°, for left eye + 1-36th c. 140° to read or work with, making her myopic = 1-36th in all meridians. She expressed herself pleased with her new spectacles, and I have heard no more complaint.

To conclude this list of cases I will cite one other of astigmatism in a child giving rise to trouble.

M. S., aged eight, was under treatment for phlyctenular ophthalmia, when her mother stated that her eyes had always been weak, and that she was badly near-sighted. When her eyes were well enough to examine the refraction, I found a hypermetropic astigmatism = 1-24th in each eye at 180°. With + 1-24th c. 90° she could read diamond type at one foot, instead of having to hold it at fiveor six inches, as she did without the glasses.

These few typical cases are sufficient to show how important a role the errors of refraction have come to play in ophthalmology; in so much that it now constitutes a specialty in itself. It is impossible for the general practitioner to work out these cases and supply the correcting lenses; but it is possible for him to have a knowledge of their existence, and to avoid the error of condemning every case where no palpable disease is present; or, of empirically applying remedies with the vain hope of doing some good. A little consideration and friendly counsel on the part of the medical adviser would save many of these unfortunates from the hands of impostors.

ECLECTIC DEPARTMENT.

"Carpere et colligere."

ART. 1.—*Congenital Occlusion and Dilatation of Lymph Channels.* By SAMUEL C. BUSEY, M. D., Washington, D. C., Prof. of the Theory and Practice of Medicine, Medical Department of the University of Georgetown; one of the Physicians to the Children's Hospital; and Physician to the Louise Home. (With numerous wood engravings.)

CASE XXV.*—Child, aged fifteen months. From birth the

* Gun, Chicago Med. Jour., vol. xxvi, p. 707, 1869.

left leg was enlarged, and from the fourth to the fifteenth month had doubled in size. The development extended from above the knee to the foot, nearly overlapping the toes, and measured in circumference at its largest part (see figure 20) 21½ inches.

Fig. 20.

The skin was smooth, attenuated, and pliable. An exploratory puncture gave exit to serum, which continued to flow for one hour. A section of the amputated part exhibited hyperplasia of the superficial fascia, the deep fascia and integument being normal.

Case XXVI.*—Victor H., aged seven years and six months. The abnormal and congenital development consisted in enlargement of the annular and auricular fingers of the right hand, of the corresponding hypothenar eminence, of the anterior surface of the forearm, and extended markedly in front of the chest of the same side. The right annular finger was quadruple its normal size, curved backwards, and convex on its palmar surface. Voluntary movements completely abolished. Auricular more like a toe than a finger. Its dimension interfered with the movements of the other fingers; semi-flexion was very limited. The bones participate in the enlargement. Sensibility perfect; no perceptible arterial pulsation in affected fingers.

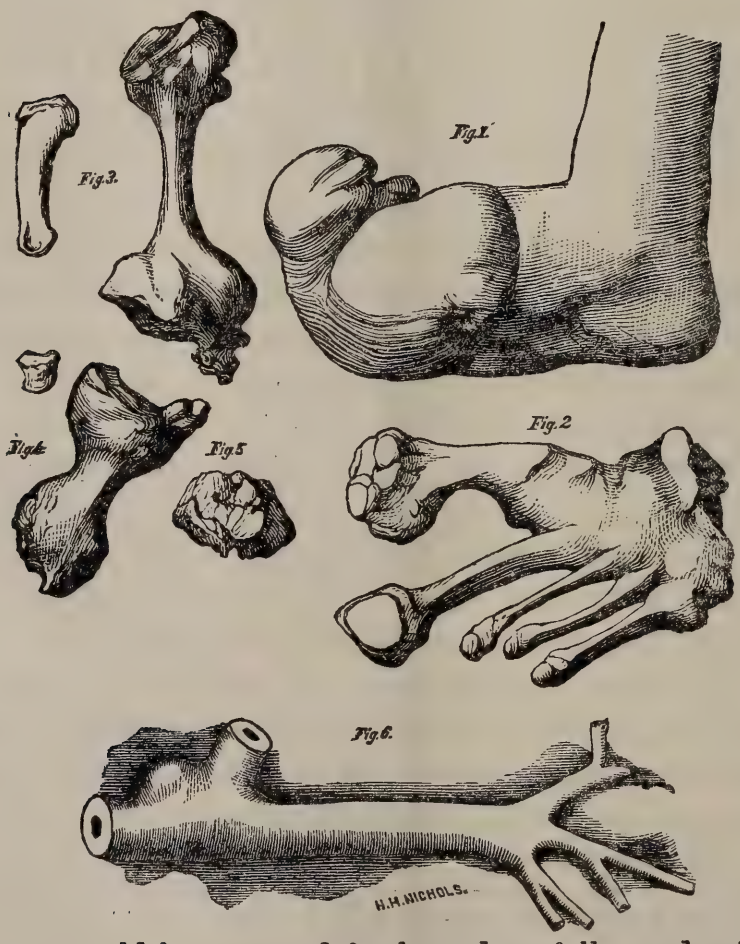
The palmar surface presented a large prominence, feeling like a lipoma, and the swelling on the forearm felt doughy. Fingers removed and examined. The hypertrophy was confined to the

* Michel, Recueil des travaux de la Société Medicale d'Observation de Paris, Tom. I, p. 319, 1857–58. This is probably the same case submitted to the Society by Guersant. In that case the auricular and annular fingers of the right hand were enlarged, and the palmar surface of the hand presented a large swelling. The child was then between four and five years of age. Gazette des Hopitaux, No. 116, October 3, 1857, p. 463. Société de Chirurgie, seance, September 23, 1857.

cellular adipose tissue and bone; skin was neither thickened nor attached. The fatty tissue was intersected by trabeculæ, and the areolæ which they circumscribed contained little adipose clusters, which were swollen, and seemed to produce herniæ on the walls of the cellules. Tendons atrophied; vessels rudimentary; arteries filiform; veins difficult to find; nerves atrophied; bones lengthened. Temperament lymphatic.

Case XXVII.*—A girl aged fourteen years. The third and fourth fingers were equably hypertrophic in length, width, and thickness, and to such a degree that the middle finger was one and a half times the length of the well-formed index. All

Figure 21.



movements could be executed freely and usefully, and, with the exception of the size, the only abnormity of the fingers was that they assumed a purple color when hanging down.

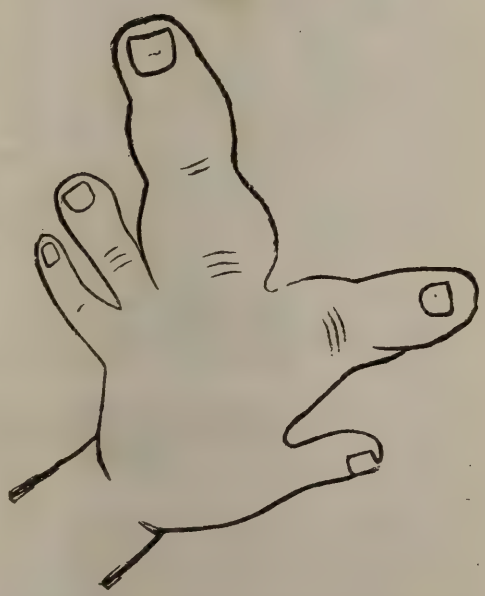
Case XXVIII.†—A young man, aged twenty, born with hy-

* Busch, loc. cit. † Busch, loc. cit.

pertrophy of left foot, which principally attacked the first, second, and third toes, of which the two latter were fused into a formless mass. Fourth and fifth normal, but beneath the pad formed by the second and third toes.

The development of the soft parts was due to lipomatous augmentation of the adipose layer, and was principally found in those places where the bones were hypertrophic. The fat development was found upon the dorsal and plantar surfaces of the three first toes, extended on the sole to the os calcis, and on the dorsum overtopped the fourth metatarsal bone. It extended over the tibio-tarsal articulation, above which were several smaller lipomata on the anterior tibial surface. All three toes stood in very strong hyper-extension. On the dorsum of the last articulation (see 1, figure 21) of the great toe was a deep furrow, which bi-lobed the mass; one, not so deep, was situated over the metatarso-phalangeal articulation of the fused toes, and another was found over the last articulation. The patient could flex and extend the foot; but the motion was limited, and during it crepitus could be heard. Could not move the toes. The tibiæ were of equal thickness, but of unequal length. The amputated foot exhibited fat intimately grown into the integumentary tissue. In some places the lipoma proper lay immediately beneath the thin skin, at others a thick, steatomatous sward lay between the toes, in which the fat was imbedded in very solid, firm, fibrous layers, and underneath this softer lipomatous tissue. Between the dorsal lipomata, and buried into them, lay a network of colossal veins (see 6, figure 21), and at the junction of several branches a large ampulla was found. The enlargement of the veins was due to hypertrophy of their walls; arteries and nerves normal; muscles atrophic and pale, and the bundles were pressed asunder

FIGURE 22.



by fatty tissue. The articular surface of the first metatarsal bone was divided into three facets (2, anterior view; 5, lateral); 3 and 4 show the first and second phalanx of the second toe, natural size. The diaphyses of the altered bones were narrow, whilst the epiphyses were tuberous, and covered by irregular osseous projections.

Case XXIX*.—M. M., aged three years, was healthy and a well-formed child, with the exception of a deformity of the fingers of the left hand. At birth the index and middle fingers were much longer than the others. The fingers were quite useless, and possessed very little free movement. The remaining digits were natural. An examination of the amputated fingers showed that the disease consisted of an hypertrophy of all the tissues.

Fig. 23.

Case XXX.†—R. S., aged sixteen months. At birth his left hand and arm were larger than the other, and rapidly increased in size. The whole limb, from the shoulder, as shown in figure 23, is very much enlarged, chiefly in thickness, although the length is increased also.

The first, second, and third fingers are enormously hypertrophied. The fourth and fifth are of normal size. The metacarpals correspond to their digits, the first three being very large. Both sides of the hand are covered with a thick elastic cushion. The hypertrophy involves all the structures, the great size of all the bones, except of the fourth and fifth fingers, being very evident. The humerus, radius, and ulna are also thicker and rather longer than on the right side, but the enlargement of the arm is chiefly situated in the soft tissues. "The child can use the

* Annandale, Malformations of Fingers and Toes, p. 5.

† MacGillivray, Australian Medical Journal, vol. xvii, p. 9, 1872.

arm and all the fingers, but he can not lay hold of anything, and the hand is perfectly useless."

The measurements are as follows:

	Sound.	*Hypertrophied.*
Acromion to Olecranon	5¼	7¼
Olecranon to wrist	4½	5
Circumference of arm	5½	9½
Circumference of forearm	5½	8
Wrist to point of index	3½	6
Circumference of hand	4½	9½

The brachial artery was ligated close to the axilla, which arrested the growth, and subsequently the fingers were amputated. The amputated mass weighed 12½ ounces avoirdupois. The abnormal thickness was mainly subcutaneous fat.

CASE XXXI.*—Miss ——, aged sixteen years; had from birth an enlargement of both great toes, which projected one inch beyond the other toes. She was constantly troubled with irritation and inflammation of the bursal swellings which formed on the toes.

FIG. 24.

Annandale briefly refers to a case in which the great and second toes were elongated and enlarged. The phalanges and the part of the metatarsus connected with these two toes were very much enlarged.

*Annandale, p. 8.

Case XXXII.*—The deformity presented the appearance of two great toes; but on dissection of the sole of the foot, it was found that the large toe, which looked at first like a great toe, was really a second toe, in which the three phalanges were hypertrophied and anchylosed together. The hypertrophy was congenital.

Case XXXIII.†—W. T., aged nineteen years. Index and middle fingers of left hand exceeding corresponding fingers in length one inch. They are also thicker. Circumference of left carpus one inch greater than right. Muscular tissue slightly more developed on left forearm than right. Motion impaired. Integument, panniculus adiposus, muscles and bones are in equal proportion enlarged and thickened. Veins of left dorsum more developed than of right. Touch and sensation normal. Growth of hand in proportion to that of body.

Case XXXIV.‡—Male, aged twenty. Left thoracic cavity

Fig. 25.

somewhat larger than right; left shoulder somewhat larger than right. Deltoid eminence of left side more prominent.

* Sydney Jones, Lond. Lan., vol. ii, 1864, p. 549.

† Ewald, Virch. Archiv, vol. lvi, p. 421.

‡ Gruber, Virch. Archiv, Bd. lvi, p. 416.

Left arm larger, but not longer. Half of hand belonging to thumb and index fingers abnormally enlarged; left carpus larger than right; left metacarpus enormously wide. Position and condition of hypertrophic fingers shown in figure 25. Growth not in excess of the body.

The maximum part of the excessive development of the limb in Case I consisted in the hypertrophy of the adipose tissue, and certainly the greater if not the entire part of the excessive length was due to the fat cushion on the plantar surface. In this case, as is usual in congenital giant developments associated with similar adipose formations, the lipomata are more strikingly exhibited upon the flexion side, differing in this respect from those originating in after-life. They also attack localities which are never selected later in life. There was not in this case any manifest bone-hypertrophy. From the observations cited, it appears that bone-hypertrophy not unfrequently attacks the epiphyses, producing irregular development of the articular ends, which disturbs the normal movements of the joints. In this case the symmetry of the ankle-joint was not disturbed by any bone malformation, but by the surrounding fat development.

Among the peculiarities which distinguish the congenital giant formations from the acquired forms, Virchow enumerates bone-hypertrophy as an occasional lesion. In the higher grades of these developments, in which the connective tissue is principally involved, bone lesion is quite frequent, and* frequently upon section through such diseased parts, from the surface downward to the bone, nothing but a "simple coherent, hard fibrous callosity" is found, which the older authors denominated lardaceous, but which Virchow insists is "nothing but sclerotic connective tissue saturated with clear, expressible serum,† rich in round cells," in which the different former tissues can not easily be distinguished, being partly destroyed or so intimately grown into one another as to form a single mass, producing atrophy of the enclosed tissues, especially of the muscles and nerves, and consequently paralytic and anæsthetic conditions.

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* Onkologie, Virchow, vol. i., pp. 311, 312.

† Hendy, Wiedel, and Kaposi insist that it is lymph.

If this process should continue down to the bone, the periosteum becomes implicated, and new layers of bone are produced. In some cases a smooth periosteum may be found; in others it is irregular, wart-like, and sometimes presenting "thorn-like formations" of most singular appearance.* These bone formations may extend into the extra-periosteal layers and even into the connective-tissue callosities. In the structure of these hypertrophied bones Böhms found nothing abnormal; but Busch asserts that the adipose and medullary tissues of the bones are more strikingly developed than the bone lamella—in fact, the latter may be remarkably thinned. Rokitansky† divides bone-hypertrophy into internal and external hyperostosis; in the former the increase proceeds from the "Haversian canals and medullary system;" the bone becomes more compact and the medullary cavity is diminished; in the latter form the breadth and thickness of the bone is augmented by the formation of new layers on the periosteal surface, without diminution of the medullary canal. Both forms, he adds, may occur together, and "each is the result of the gradual formation of too great a quantity of the cartilage of bone, in which the normal salts of bone become deposited."

The cases numbered from 13 to 34 (both inclusive) do not uniformly exhibit excess of bone development. Some cases (15, 20, 21, 23, 24, 27, 29, 30, 31, and 33) are characterized by increased thickness and elongation of the bones of the affected part, and fibromatous or lipomatous degeneration of the soft parts; in other cases the hypertrophied (14, 18, 19, 25, and 26) or elongated part (11, 13, and 17) is unaccompanied with any alteration of the bone either in thickness or length, and in such cases the excessive enlargement and elongation is owing entirely to lipomatous formations; in a third class of cases bone-hyper-

* In elephantiasis of the leg, the bones appear thickened, and either smooth, but hardened, sclerosed, or irregular on the surface, studded with pointed and tubercular stalactile exostoses, which project into the hypertrophied soft parts, and may be variously amalgamated together. In the midst of the sclerosed parts carious and necrosed spots are occasionally found. Hebra, Diseases of the Skin, vol. iii, p. 170, Syd. Soc. transl.

† Path. Anat. vol. iii, p. 104, American ed., 1855.

trophy without elongation is found in connection with adipose developments. In several instances, in which bone elongation was combined with bone-hypertrophy, there were also found alterations of the vascular system; in Case 21 numerous "bleeding vessels (probably veins with thickened walls) were found, and the cellular tissue had degenerated into a fibrous mass holding in its cellules whitish fat granules;" in 23 a large "nævus occupied the entire limb;" in Case 27 the hypertrophied fingers became purple when hanging down and Case 14, in which the enlargement was due to lipomatous formations, the veins on the dorsum of the hand were varicose. Case 21 is especially interesting, inasmuch as it shows the probable transition of a preëxisting adipose into a fibromatous degeneration and bone-hypertrophy and elongation, in connection with a superabundant supply of blood. Hyperostosis and increased length are also found in conjunction with augmented arterial supply. This condition is exhibited in the "three cases (35, 36, and 37) of partial hypertrophy of a portion of the organs of voluntary motion," reported by Dr. John Reid.*

Case XXXV.—W. C., aged fifteen. The right upper extremity was proportionate to the size of the lower extremity and to the trunk, while the left was hypertrophied in the hand, forearm, arm, and region of the scapula. The difference was dependent upon the difference of the relative size of the muscles and bone, from the phalanx upwards to the clavicle and scapula, and in various muscles attached to these. The adipose tissue was not increased, but the cellular and cutaneous textures were probably developed uniformly with the muscular and osseous.

The skin of the arm presented a number of red patches, one nearly extending over the scapula; the others were located on the outer side of arm and forearm. The whole arterial system of the left superior extremity was enlarged, and the pulsations of the subclavian, the axillary, and all its branches, down to the digital, beat with great strength. The temperature in right hand was 77°, in left 86°, in the right axilla 98°, and in the left 100°. The comparative measurements were as follows:

* Lond. and Edin. Monthly Jour. of Med. Sci., vol. iii, p. 198.

	Right.		*Left.*	
Circumference of middle arm	7	inches.	9.1	inches.
" an inch below elbow	7.5	"	9.8	"
Wrist	5.4	"	6.3125	"
From inferior angle of scapula to clavicule-scapular articulation	6	"	6.0550	"
From inferior angle to middle of spine of scapula	5.0450	"	6	"

The movements of extension, pronation, and supination were imperfect and painful.

CASE XXXVI.*—A girl, aged two years, healthy. The middle toe of the left foot projected three-fourths of an inch beyond the great, and equaled in bulk all the remaining toes. The phalangeal and metatarsal bones were hypertrophied, and the foot appeared as if the toe of an adult had been transplanted upon the foot of a child. The foot was of great breadth, caused by the increased thickness of the metatarsal bone and interosseous muscles. The dorsal artery of the foot beats with increased force.

CASE XXXVII.†—The thumb of the right hand was one-fourth of an inch longer, and was double in thickness of the corresponding finger, and the index exceeded in length the middle one-half inch. The temperature between the thumb and forefinger was 2° to 6° higher than the same locality on left hand. The radial artery of the left was double the size of that of the right arm, and felt more distended with each pulsation.

The three preceding cases (35, 36, 37) were all congenital, and probably belong to the second group, in which the growth of the hypertrophied part is in excess of the rest of the body. They are illustrations of increased nutrition, which affects uniformly all the component tissues of the part involved, which were supplied with a redundancy of arterial blood. There are, however, other cases belonging to the same group which do not present the same anatomical relation of the different textures of the parts affected. In the report of the following case of M. Chassaignac,‡ no allusion is made to any alteration of the arterial system, though the surface of the hypertrophied extremities

* Lond. and Edinburgh Jour. of Med. Sciences, vol. iii, 198.

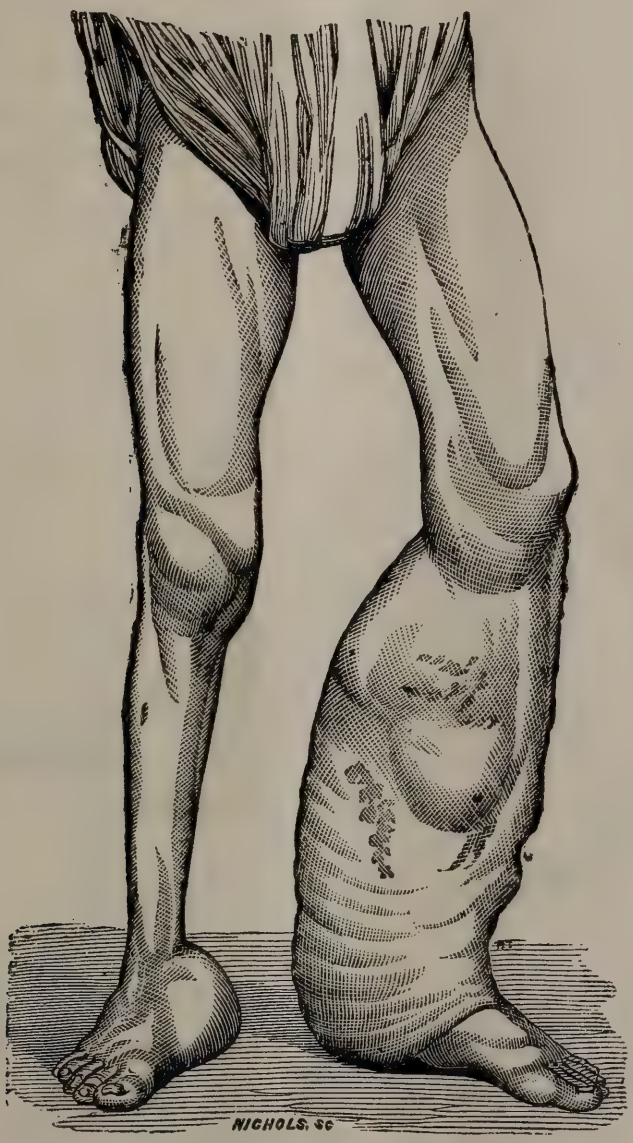
† Ibid.

‡ La Lancette Française Gaz. des Hopitaux civils militairis, May 8, 1858, p. 215. Chirurgical Society, meeting April 28, 1858.

presents a number of venous blotches and varices, which the reporter designates under the name of "taches érectiles cuticulaires diffuses."

Case XXXVIII.—C. L., aged eighteen. Had scrofulous glandular abscess on the right side of the neck. The two members of the left side were those of an individual of ordinary

Figure 26.



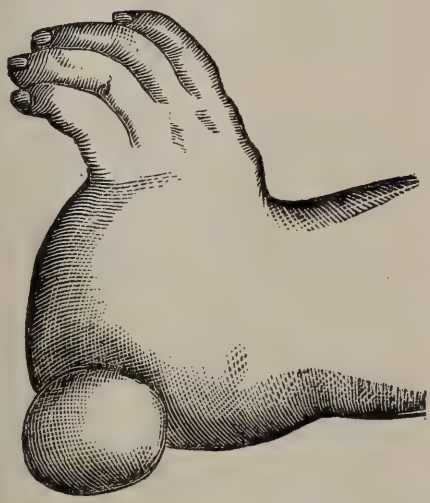
stature, while those of the opposite side seemed to belong to a giant. The different parts of the two last members were not uniformly hypertrophied. The hand was much more so than the arm and forearm; its external half more than the internal; the thumb, index, and middle fingers were relatively much

longer and much more voluminous than the two last fingers. The leg and thigh were less voluminous than the foot—this was colossal. The great toe was enormous, but relatively less developed than the four last toes. The man affirmed that he had at least three times as much strength in the enlarged members as in those of the right side.

Case XXXIX.*—B. D., born with lower extremity more developed than the other. The skin presented diffused redness with circumscribed bluish spots. The right foot was so enlarged. The growth of the left extremity increased with astonishing rapidity. The child nursed, slept, walked, played, and at the age of three years, when, suddenly crying out, with her hands on her head, she died in a few moments.

Figure 27.

Figure 28.



Case XL.†—In a six-year-old Polish Jewess existed general hypertrophic development of the second and third toes, and of the respective metatarsal bones. The bones as well as the soft parts were hypertrophic and grew rapidly.

Case XLI.‡—A young man, aged nineteen, native of Beaugency, was affected with a general and congenital hypertrophy

* Gherini (de Milan), Bull. de la Société Imperiale de Chirurgie de Paris. 2d Series, vol. viii, 1868, p. 350, Meeting Oct. 16, 1867.

† Burow, Deutsche Klinik, 1864, No. 24, cited by Busch, loc. cit.

‡ Poulain, Revue Photographique des Hopitaux de Paris, 1872, p. 283.

of the left leg. The tumefaction was irregular, formed (see figure 26), moreover, at the expense of the soft parts, and appearing as an indolent mass attached to the member, which seemed to be formed of flabby tissue, giving to the hand the sensation of little lobules separated by fibrous partitions, and limited to the subcutaneous cellular tissue, the skin being completely independent of it. The bony portion seemed also involved; the anterior surface of the tibia was one-third larger than the surface of the opposite one, and the bone was lengthened. Above the external malleolus were little varices, and on the plantar surface of the corresponding heel a large tumor. On the body were a number of true lipomata, and the mammæ

FIGURE 29.

were enlarged by an increase of fatty tissue. Extension of the tibio-tarsal articulation was limited.

CASE XLII.*—A girl, aged twelve years, with hypertrophy

* Busch, loc. cit.

of the fused second and third toes of the right foot. The fused toes were in hyper-extension in all their articulations, and protruded one inch beyond the other toes.

Examination of the amputated toes showed thickness of the adipose tissue between the skin and bone; on the plantar and dorsal surfaces, arteries, veins, tendons and nerves, normal. Osseous parts, especially the epiphyses, enlarged in all their dimensions.

Case XLIII.*—A healthy and intelligent girl, born with the index and middle fingers of left hand hypertrophied to three

Figure 30.

times their normal size. The enlarged middle finger measured eight inches in length, and the same in circumference. The index measured four and a half inches, both in length and cir-

* Adams, Monthly Jour. of Med., vol. xx, p. 170.

cumference. The two fingers were bent in opposite directions (see figure 27). On the dorsum of the metacarpus was a tumor, apparently fat, and on the carpus another. The skin covering the hypertrophied fingers was deep pinkish; temperature and sensibility were normal; motion was imperfect.

Examination of the amputated mass exhibited hypertrophy of the metacarpal bones, and very great elongation of the three phalanges of the middle finger. The epiphyses were not ossified, the bones were firm, and on longitudinal section exhibited everywhere a vast predominance of adipose structure, which with the hypertrophied and elongated bones, constituted the bulk of the deformed mass.

CASE XLIV.*—A. T., aged seven years, was born with an enlarged and distorted right thumb. At one year of age it began to grow and increased very rapidly, and the swelling extended to the forearm. The areolar tissue was increased, and the muscles of the arm and forearm were hypertrophied. The humerus, radius, and ulna feel enlarged (figure 28).

CASE XLV.†—E. H., aged fifteen. Hypertrophy and elongation of the fore, middle, and ring finger of right hand (see figure 29), and of the thumb, index and (see figure 30) middle fingers of the left. The right middle finger five and a half inches in length, and in circumference four; the left index and middle fingers measured five inches in circumference. All the parts of the hypertrophied fingers were equally developed in excess, the bones, articulations, integuments, and nails. The motions were not destroyed, but greatly impeded. The fingers were cold, but sensation was not impaired. Pulsation could be detected in the digital arteries, but it was indistinct.—*Amer. Jour. of Obstetrics.*

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* Annandale, loc. cit., p. 6. This author furnishes several additional illustrations, but the cases are not reported.

† Curling, Medico-Chirurg. Trans., vol. xxviii, p. 337.

ART. II.—*The Past, Present and Future of Scientific Surgery.* By T. SPENCER WELLS, F. R. C. S., Surgeon to the Queen's Household. Delivered before the British Medical Association August, 1877.

Mr. President and Gentlemen,—When I received from the President of the Council of this great Association the unanimous request of the Committee of Council that I would deliver this address, and was further assured that I was thus invited at the suggestion of a deputation from Manchester, I felt that any hesitation on my part might appear ungrateful, or as if I did not appreciate a great honor. So, without wasting your time by apologies, and simply thanking you for the exceeding kindness of your greeting to-day, I will ask you to consider with me how, as an Association, how in each of our branches, how, individually as well as collectively, every one of us may assist in the advancement of the surgery of the future; how the art and science of the present, which we have received from our forefathers and our teachers, and as far as we could have improved, may be so handed down that our followers, taught by our success, warned by our failures, knowing where our knowledge is defective, our methods faulty, may so work and so observe that in each succeeding year surgery may become more perfect as an art, more exact as a science, and more honorable as a profession.

It is almost impossible to estimate the state of surgery of the present day, still more so to look forward to what surgery may become, without some review of its condition long ago and of the progress made during the existence of this Association.

It is one of the remarkable coïncidences of English history that the reigns, nearly equal in duration, of the two Queens, Elizabeth and Victoria, have been the two ages most distinguished by the rapidity and extent of national development. Elizabeth mounted the throne after the death of her sister Mary—a death accelerated by disappointment at the termination of supposed pregnancy in dropsy, which was no doubt ovarian, and treated according to ignorant routine by successive bleedings. Treated with the knowledge now at command, the destinies of England might have been strangely altered. Eliza-

beth reigned forty-five years, and in her time surgery, though already chartered as a profession, was neither an art nor a science. For the most part it was carried on as a trade, after the fashion of the country farriers of our day. Indeed, it was unanimously agreed by the Queen's Commissioners that it was unlawful for surgeons to administer internal remedies even in cases of wounds. "Bokes of Chirurgerie" were collections of sayings and nostrums. Life was rude, living was unwholesome, and death came early. The people perished by scurvy and sweating sickness; they were killed or scarred by small-pox; their blood was poor, and the barbers bled them. Fighting men began to suffer from gunshot wounds, and their blood, gushing from arteries cut in hacking amputations, was staunched by "choke-bands," by boiling pitch, or by hot irons. The first impulse towards improvement came from Ambrose Paré. But men long looked suspiciously on his new practice of tying blood vessels in amputations. And so as an art surgery—an exception to the general progress—stood almost still, even long after Harvey's great discovery, and scarcely any important advance, beyond such manual dexterity as that of Cheselden, was made until the time of Hunter. His noble work is thus epigrammatically acknowledged by the philosophical Malgaigne: "Surgery, which in the middle ages scarcely ranked above a common trade, and grew to be honored as an art in the hands of Paré and Petit, was raised by Hunter to the dignity of a science." What it has become since, and is now, we may, perhaps best see by rapidly tracing its development parallel with the history of our Association, which may almost be said to be the offspring of the age of Victoria.

Before this Association was founded, the daily practice of surgery was guided by a knowledge of what Hunter and Scarpa had done as to the ligature of arterial trunks. Resection of joints had been frequently though not commonly performed. Bell's teachings of the different nerve functions had been universally accepted. Auscultation and percussion had been gradually perfecting diagnosis among those who were then about entering into practice. The vegetable alkaloids were beginning to take the place of the coarser materials previously used as

remedies. Almost coïncidently with the formation of this Society in 1832, there began to be spoken about vaguely, and as curiosities, things which are now so universally practiced that probably very few of those who listen to me recollect how very recently they have been accepted as part and parcel of surgical practice. I am not one of the oldest here, but I can well remember when lithotrity was a novelty, when the subcutaneous section of tendons was absolutely new, when orthopædic surgery was unknown, when the torsion of arteries was spoken of as a barely possible substitute for the ligature, when the radical cure of hernia was scoffed at as a French delusion, when the treatment of aneurism by compression had hardly even entered into the professional imagination, and the study of uterine pathology was only just opened up by the introduction of the speculum as a means of investigating the condition of the mouth and neck of the uterus.

In 1832, when it was resolved to form this Association, and at the succeeding meetings in 1833 and 1834, all these things were new and almost untried. In 1835, at Oxford, Costello publicly demonstrated lithotrity as a novelty before the assembled members, and I think we may fairly date the establishment of that operation, now so carefully and generally practiced by so many of our associates, from that meeting.

In 1836, the Association met for the first time at Manchester. Crosse, of Norwich, was the first surgeon to give a retrospective address. In it he mentions as a recent discovery that of the trichina spiralis by Owen. He makes the first notice of the chloride of zinc in cancer, and doubtingly hopes that the use of the speculum even in this country may become general. He states that in this year there is the first known example in Great Britain in which both mother and child were saved by the Cæsarean operation, done by Knowles, of Birmingham.

And here for a moment let me ask you to recall to mind the man who forty years ago was speaking to the Association as I now speak, not with his power, but to an audience enormously increased in numbers and influence. Crosse lived till 1850. I did not know him personally, but friends of mine who did, speak of him as a man upright in character, earnest, natural, joyous,

communicative, a fellow-worker with his pupils, of intense and untiring energy, priding himself upon gaining a most exact information of the progress of surgery, self-reliant, rapid in judgment, ready in action, calm and dexterous as an operator, yet with a strong conservative tendency as regards the knife, and most scrupulous in his attention to even the minutest details in the management of his cases. A clear and accurate writer, an industrious contributor to periodical literature, the good he did lives after him, especially in the impetus which he gave to the study of the direction, sanitary condition, and improvement of hospitals.

After Crosse, the next retrospective surgical address was by James, of Exeter, in 1839. In this he alludes, as a great novelty, to the fact that a member of our Association, Jeaffreson, of Framlingham, had successfully extirpated an ovarian cyst through a small incision; and also mentions that King, of Saxmundham, had repeated the operation on another patient with an equally good result. In 1840, at Southampton, Dodd, of Chichester, in the address on surgery, gives an account of the recent experience of Dieffenbach and Liston in operating for strabismus as something new, and reports that lithotrity does not seem to make any great advance in the favor of the profession in this country; and in 1843, at Leeds, William Hey said that "the rage for dividing muscles and tendons is somewhat moderated." In his own words: "The past year has been signalized by the successful performance of several operations for the removal of ovarian tumors from the abdomen. Dr. Clay, of Manchester, has recorded five cases, of which three were successful, and Mr. Walne, of London, one successful case." The William Hey who gave this address on surgery was the third in the line of the great family, the head of whom was president of the meeting. Owing to his advanced age, the general address was read for him, and he died in the course of the following year. As a pupil of the Leeds Infirmary forty years ago, I well remember the careful teaching and painstaking kindness of William Hey, Jr., as he was then called. The name of Hey stood almost as high in Yorkshire as those of Abernethy and Cooper in London; and one of the family, Richard, grand-

son of the President, and for many years surgeon to the York County Hospital, almost simultaneously with Abernethy tied with success the common iliac artery for external iliac aneurism. The surgeancy of the Leeds Infirmary has been held in the same name for one hundred and six years, and descendants of the third and fourth generation are members of the present staff. Worthy representatives of the great family to which they belong, they still maintain the high reputation of the surgery of the North. Another well-known member of a noted family of Yorkshire surgeons, Thomas Pridgin Teale, read the address at Sheffield in 1845. He alludes to the treatment of aneurism by compression, as indicating a great advance in the science of surgery. He notices Key's modification of herniotomy by dividing the stricture outside the sac as gradually assuming the position in the estimation of the Profession to which it is entitled.

We now come to what will ever be looked on in future time as the commencement of a new era in surgery. In 1847, at Derby, Walsh, of Worcester, introduces for the first time the subject of anæsthesia, Crosse remarking that the inhalation of sulphuric ether was a subject of deep importance and great novelty. Your hourly familiarity with the use of anæsthetics of various kinds will make it difficult for you to realize the fact that it is only thirty years since Crosse spoke before this Association of the inhalation of ether chiefly as a means of disarming a patient of his antagonism. The first considerable essay on anæsthesia, and anæsthetic substances generally, was published in our Transactions in the following year by Nunneley, of Leeds. That was in 1848; and in the same year, at Bath, chloroform was for the first time publicly mentioned before this Association. In a review of the history of surgery in the reigns of Elizabeth and Victoria, there is no brighter page than that which records the discovery of anæsthetics, and not one in which the contrast is more strikingly in favor of the practice of our day. Anæsthesia in midwifery met with more opposition than in surgery; and there must be many here who know well how much was done by the personal example of our own Queen towards allaying groundless fears and disarming irra-

tional prejudice. National vanity may be more flattered by some public deeds of royal devotion; but I can not call to mind stronger proof of moral courage, of wiser consideration for the interests of her subjects, nor any act which, in the personal relations of the Queen to her people, demands more respectful recognition from the Profession, or has a stronger claim on national gratitude.

In 1854, the Association met for the second time at Manchester—its twenty-second anniversary meeting. Instead of 7,000 members, as now, there were but little more than 2,000. Instead of the large attendance so hospitably welcomed this week, only 202 members attended.

The surgical address in 1856 at Birmingham, by Langston Parker, should be remembered as a judicial summary of what was known of the treatment of cancer by caustics.

In 1857, at Nottingham, your Manchester Southam read the address on surgery, limiting himself to the subject of cancer and its treatment. Many of you knew Southam better than I did; but sitting with him in the Council of the College of Surgeons, and joining in the friendly gatherings which followed some of those meetings, I learnt to appreciate his sterling straightforward honesty, his kind genial character, and his ardent love for our Profession and its work. And I can fully endorse all that was said of him by Sir James Paget in his obituary notice of the deceased Fellows of the Royal Medical and Chirurgical Society, and acknowledge with extreme interest all that Sir James said as to Southam's services in the early days of ovariotomy in England.

Passing on to the Edinburgh meeting in 1858, it was then that we heard for the first time of local anæsthesia. Here also the subcutaneous injection of narcotics was brought under notice by Alexander Wood, who stated that even then the practice, although but lately introduced, was becoming general in Edinburgh; and recent improvements in the treatment of vesico-vaginal fistula were described to the Association by Mr. Baker Brown. Sims' speculum and wire sutures were then unfamiliar; though they are now acknowledged to rank among the chief of the improvements for which we are indebted to our American brethren. Baker Brown was one of the first to adopt and after-

wards to modify the proceedings of Sims. Brown had previously done good service by demonstrating the mode of curing old ruptures of the perineum, and his example undoubtedly assisted in the improvement of this department of surgery. As an operator he was almost perfect, and he was one of the earliest surgeons to practice ovariotomy. Many years afterwards, he extended the use of the cautery-clamp (employed by Clay, of Birmingham, to divide adhesions and stop bleeding from omental vessels) as a mode of separating and securing the pedicle. May I be excused if I venture to remind you that in 1861, at the Canterbury meeting, I brought before the Association a paper on the treatment of ovarian cysts, which others have said had some influence in directing professional attention to an improved method of performing ovariotomy, and to the selection of cases for the operation, and other modes of treatment?

The first meeting of the Association in London, 1862, its thirtieth Anniversary, was rendered memorable by the surgical address of Paget. He spoke of the management of patients after surgical operations, and urged upon us all the study of the large group of diseases classed under the name of pyæmia, their origin, multiform nature, and mode of prevention. Read the lecture; it is a surgical classic, an eloquent but despairing cry from a great surgeon who feels the "deep regrets, the bitter disappointments from which we might be saved if there were less risk" after many of the operations done to save life, and who shudders at the "tolerated barbarisms of practice," only justified by the belief that the risk of "a cutting operation is so great that there is nothing too bad to be substituted for it," and who can find but one thing that he can call remedial for the whole disease pyæmia, and that is, a profuse supply of fresh air—"wind blowing all about the rooms." In his concluding remarks, the orator impressed us all by his appeal to lessen the number of preventable deaths after great operations, insisting that the mortality "will be reduced if the members of this Association will decide that it shall be, and will act vigorously on their decision."

Deeply sympathizing with this desire to remove all possible

sources of excessive mortality after surgical operations, I brought the subject again before the Association at the Cambridge meeting in 1864. Feeling that something more than an abundant supply of fresh air was wanted, and knowing that with the air might enter unsuspected sources of danger to the patient through his wound, I directed attention to the researches of Pasteur upon the presence of infectious germs or organisms in the atmosphere, and to the demonstrations of Charcot and others of the impure particles in hospital wards, and showed how the development of low forms of animal and vegetable life was checked by the use of sulphur and the sulphites, as taught by Polli.

The Leamington meeting, in 1865 was distinguished by the address of Syme, in which he reviews the progress of surgery during the previous forty years, alluding among many other matters of interest to the new position which the operations of Thomas Keith, and my own, had given to an operation previously regarded as remarkable for uncertainty of prognosis, difficulty of diagnosis, and danger of execution. Coming from such a man at that time and on such an occasion, this judgment must have had considerable weight on professional opinion; and more than one writer has expressed his belief that by actually performing the operation on two patients in the following year, before the assembled Association at Chester, showing that it could be done and how it was done to a large number of practical surgeons, another step was gained in securing a more general admission of ovariotomy among the legitimate proceedings of surgery.

By this time the numbers of the members of the Association had greatly increased, the meetings were more numerously attended, and that at Dublin, in 1867, was reported as the largest known by several hundreds. There, as at Oxford in 1868, distinguished foreigners arrived among the visitors, surgical papers became more abundant, and the application of general science to surgery is more noticeable. Electricity, optics, acoustics, chemistry, had all contributed to the perfection of instruments facilitating more exact diagnosis. The ophthalmoscope, the otoscope, the laryngoscope, and the endoscope, all

appear as familiar aids for exploration. The thermometer was in almost universal use, the sphygmograph still confined to the select few; the splanchnoscope or diaphanoscope then as now a curiosity. Microscopic parasites, animal and vegetable, were recognized in greater number, and were divided into orders, genera, and species. The infectious influence of hospital atmosphere was being more feared and more carefully guarded against, drainage was coming more into practice in the treatment of wounds and as a preventive of local inflammation and general fever after surgical operations. At the Leeds meeting, in 1869, the antiseptic treatment was brought before the Association by Nunneley, who ridiculed it as a professional error, and said that he believed "if stumps heal under such treatment they do so in spite of it." Remember this was only eight years ago. Two years later at Plymouth, in 1871, the surgical address was given by Lister mainly on this one subject, and exclusively as the result of his own observation and experience, but with the effect of giving an immediate stimulus to the spread of the antiseptic system at home and abroad.

The meetings in 1872, at Birmingham, and in 1873, in London, with the attendance largely increased, the work methodically arranged in sections, the papers more varied, the discussions more animated, the presence of the Prime Minister at the dinner, the more complete amalgamation of the metropolitan and the provincial members, had both their share in assisting in the advancement of the social position of the Profession and the progress of surgery. At Norwich, in 1874, Mr. Cadge noted as recent improvements Esmarch's bloodless operations and the use of Dittel's elastic ligature. The germ theory of putrefaction and antiseptic surgery he looked at as subjects still waiting for solution.

At Edinburgh, in 1875, Lister's demonstrations and Spence's criticisms fairly brought all sides of the question under intelligent observation: Lister showed before large bodies of skilled and discriminating witnesses exactly what he did and how he did it, and with what results, while Spence, before the same assemblies, sharply criticised the work of his colleagues, and contended that as much could be done under similar conditions

without antiseptic precautions. It is impossible to conceive a more satisfactory mode of completely discussing the principles of a new system of treatment than such a public trial before able and impartial judges, with the advocacy of an earnest, enthusiastic, scientific investigator and worker on the one hand, and on the other with the opposition of a cool and skeptical rival minutely criticising the accuracy of every assertion and the logical value of each inference. And here in passing, let me beg you not to forget one chief, if not the chief, advantage of these meetings. The most animated controversy may be carried on in the warmest manner, the most opposite opinions may be entertained and supported, the keenest rivalry for the honors awaiting him who first seizes upon a new truth may be exercised in the arena of discussion without the slightest personal animosity, but rather with an increase of the feeling of good-fellowship and mutual respect brought about at the social gatherings, where men are either thrown together for the first time or ripen old acquaintance.

It is impossible to review the surgery of the present day without observing the result upon it of the work of Simpson, Syme, and Fergusson, whose deaths followed each other in such rapid succession.

The association of Simpson's name with chloroform and the lessening of hospital mortality, with the attempt to "stamp out" infectious disease with acupressure, with the uterine sound, and generally with the recently improved diagnosis and treatment of the diseases of women, need only be mentioned to be felt and acknowledged.

Syme's influence was rather that of a great teacher of clinical surgery, sending forth every year a large addition to the number of our Profession, well grounded in the well-established principles of practice.

Fergusson, in the words of Paget, "the greatest master of the art, the greatest practical surgeon of our time," was the founder of the school which he, twenty-five years ago, first characterized by the happy term of Conservative Surgery, a term since become so familiar and so suggestive to the operating surgeon of care not to sacrifice limbs or parts which can possibly be saved, and

never to risk life unnecessarily, that it has gradually developed a race of modern surgeons who, not content with performing operations in the best possible manner, pride themselves far more on the number of lives and limbs they have preserved. Fergusson said, "No one can more thoroughly appreciate a well-performed amputation than I do, but I certainly appreciate more highly the operation which sets aside the necessity for that mutilation." Teaching all this as he did by example and precept for many years to large classes of young men, and to their seniors by his published writings and by lectures at the College of Surgeons, he has in a marked degree modified the character of the surgery of our age. The improvements which he introduced in lithotrity and in the cure of cleft-palate may be almost considered as typical of the school of modern conservative surgery, and will long be acknowledged as triumphs of British Surgery in the reign of Victoria. Of the man himself, so lately presiding at our meetings, so kind and friendly, the skillful surgeon, the beloved teacher, the wise and prudent counsellor, so lately lost to us, almost every one here still retains a vivid recollection; and his death is mourned as a loss to the Association which he adorned, and by a large number of our members as that of a dear friend.

And here, before quitting the progress of surgery in connection with the growth of the Association, let me ask if any one can doubt that the art and science of surgery have advanced as much since the Elizabethan age as any other art or any other science, great as those advances may have been?

And in considering how that advance, as recent as it has been rapid, may be carried further on, let me first draw your attention for a moment to the subject of anæsthesia and anæsthetics.

In 1872 I made known my opinion that all the advantages of complete anæsthesia with fewer drawbacks could be obtained by the use of bichloride of methylene or chloromethyl than by any other known anæsthetic. That was the result of an experience of five years, and of three hundred and fifty serious operations. The experience of the five succeeding years up to the present time, with more than six hundred additional cases of ovariotomy, and many other cases of surgical operations, has

fully confirmed me in this belief. Given properly diluted with air, the vapor of chloromethyl has, in my experience of ten years with more than one thousand operations of a nature unusually severe as tests of an anæsthetic, proved to be, without a single exception, applicable to every patient, perfectly certain to produce complete anæsthesia, relieving the surgeon from all alarm or even anxiety; and its use has never been followed by any dangerous symptom which could be fairly attributed to it. I wish I could speak as confidently of the chemical composition of the fluid sold as bichloride of methylene as I can of its anæsthetic properties. But whatever may be its chemical composition, whether it is or is not chloroform mixed with some spirit or ether, or whether it really is bichloride of methylene, I am still content with the effects of the liquid sold under that name, when properly administered. The only deaths ever attributed to it were, I believe, rather due to asphyxia. No air was given with the methylene. By Junker's apparatus, air charged with methylene vapor is given, not the vapor itself, and, so employed, it has always been in my experience both efficient and safe. I am sorry that some of the analytical chemists whom I have asked to clear up the question of its composition have not done so. It ought to be done, it can be done, and it must be done.

The Committee appointed in Edinburgh two years ago, reappointed last year in Sheffield, but which has never met until this morning, might very well undertake this task. Perhaps, as the Committee is a very large one, and is made up of members from Aberdeen, from Edinburgh, from Dublin, as well as London, it is almost impossible for them to do what is required in the words of the resolution; namely, "to inquire into and report upon the use in surgery of various anæsthetic agents and mixtures of such agents, and to collect and summarize the evidence of British practitioners in surgery and medicine as to the relative advantages of chloroform, ether, nitrous oxide gas, and other agents, and to carry on suitable experimental investigations." It would appear to me far better to expend any sum devoted to this purpose by the Scientific Grants Committee—and this sum ought to be a sufficient one—so as to encourage

one really competent investigator to do the work thoroughly well, bearing the full responsibility and taking the credit which is due to work well done. The valuable reports on the life-history of contagium, on the electric currents of the brain, and on the biliary secretion of the dog, which have already appeared in the "Journal," and others of equal importance waiting for publication, are quite sufficient encouragement for us to extend the practice of entrusting original investigations to individuals who shall be as liberally remunerated as the funds of the Association will permit, rather than trusting to the uncertain or impossible conjoint action of honorary committees. Perhaps we are hardly aware how much the public expect from us in this matter. Deaths from chloroform are alarmingly frequent, yet no substitute for it has found universal or even general acceptance in this country; and I am not speaking too strongly if I say it is the duty of the Association at once, without any unnecessary delay, to satisfy the public that all that is possible is being done to discover the means by which anæsthesia, effectual now, may be rendered safe for the future.

It is more than twenty years since I brought Wutzer's operation for the radical cure of reducible hernia to the notice of English surgeons. Wutzer's practice, afterwards modified by Rothmund, and the much more important change introduced and so successfully practiced by Mr. Wood, of drawing firmly together the hernial apertures, so as to establish again the valve-like action of the inguinal canal, have hardly had the effect of generalizing any of these procedures. For reducible hernia a truss, for strangulated hernia operation, is still the rule. I believe the time is coming when most cases of reducible hernia —at any rate, those not completely secured by a truss—will be radically cured by the surgeons, if not of this generation, certainly of the next. In many cases of inguinal hernia in young persons, Wood's operation under antiseptics will become more general. But we have reason to hope that we may obliterate the hernial sac close to its abdominal orifice, and strengthen the abdominal wall by the use of insulated needles connected with the positive pole of the galvanic battery, causing shrinking and occlusion of the sac; while the alternate use externally of

galvanization and faradization may assist in restoring tone to the weakened muscles. This is by no means the least of the many applications which may probably be made hereafter of electricity as a therapeutic agent in surgical treatment.

In 1848 I directed attention to the use of a weak continuous electric current in the treatment of ulcers. Dr. Golding Bird presented the results of my experience to the readers of his well-known work. Although the results were striking, Mr. Nunn is almost the only surgeon who seems to have made much use of the information. But recently a son of Dr. Golding Bird has published some very important additions to our knowledge of this subject, and has most advantageously treated scrofulous lymphatic glands by a painless electrolytic caustic. When chloride of zinc is employed as an arrow, or paste, or in any other way, the pain is very severe; but if formed electrically in the tissues of the living body, it acts in the nascent state as a caustic or destructive agent almost without pain. The albuminate of soda formed at the silver or electro-negative plate is probably inert; but the electric current certainly exerts some stimulating action, affects the capillary circulation, and so modifies reparative force as to quicken cicatrization. In the electrolytic dispersion of tumors, caustic or destructive action at the positive pole, and the influence of the negative pole upon the vaso-motor nerves of the part, are both brought to bear. The more rapid action of the galvanic cautery upon the nævus, or as a substitute for the knife, is already sufficiently appreciated; but the slower electrolytic action upon bronchocele, upon fibroid tumors, upon cancer in any of its forms, has yet to be worked out, and I hope that some of you who are now present will not fail to take advantage of so fair an opportunity of doing good and distinguishing yourselves.

You start under immense advantages. When I began to practice surgery, the only test of normal or fever heat was the sensation conveyed to the surgeon's hand. It is hardly more than twenty years since the coïncidence of a rigor and high temperature was first satisfactorily proved. Now, the most delicate self-registering thermometers are not only carried by every careful surgeon, but every well-trained nurse is taught to

make and record as many daily observations as the nature of the case may require. The various forms of surgical fever, pyæmia, septicæmia, erysipelas, are in consequence far better known and more perfectly guarded against, while the ground is cleared for the study of their more successful treatment.

So with the pulse; every one could count it, any one could soon learn to distinguish a strong from a feeble pulse, a hard pulse from a soft pulse, a pulse easily compressed from one that was incompressible, a regular from an intermitting beat; but, to obtain a trustworthy and exact measure of arterial tension, and the influence of treatment upon it, we must have the tracings of the sphygmograph. We are learning from its use after operations that the sthenic pulse, with high arterial tension, is an important guide for treatment; while the dicrotic pulse of low tension will warn us that septicæmia threatens, if it has not already attacked the patient. As an aid in detecting the effects of alcoholism, the earlier stages of the disease recently described as capillary fibrosis, and of kidney disease, the sphygmograph may prove of great service to the surgeon who is considering the fitness of a patient for operation. Dr. Mahomed's valuable observations on the exact localization of an aneurism about the arch of the aorta, and the question of operation for its cure by distal ligature of one or more of the large vessels, are certain to lead to more accurate diagnosis and successful treatment.

In 1853 I introduced the ophthalmoscope of Coccius to the profession in England. One distinguished opthalmologist still living ridiculed it in print as a toy; another, also happily among us, wrote that in cases of blindness it must be useless, and in all other cases where the retina was sensitive it was too dangerous ever to be employed. This was only twenty-four years ago; and I ask you what would be thought of an ophthalmic surgeon now who attempted to practice without an ophthalmoscope? I need not weary you by more than the barest allusion to what has been done by the aid of the laryngoscope and the otoscope, or what may be expected from the endoscope or the diaphanoscope, when the instruments are perfected and their use has become general.

Till quite lately, the tourniquet or compression of the main artery was relied upon as the chief means of checking the loss of blood in amputations and other operations. Esmarch's system of bloodless surgery not only prevents the loss of blood much more completely, but, as the parts operated upon are not bathed in blood, the surgeon can better recognize the nature and extent of disease, and perform many operations more easily with a smaller number of assistants; while the process appears to exercise a favorable influence upon the healing of the wound. The elastic constrictor will take an important place in the armamentarium of the surgery of the future, and no doubt many of the inconveniences ascribed to its use will be avoided when it comes to be more generally practiced. So also with transfusion of blood. Dr. Roussel's apparatus for the transfusion of pure blood, and the subject generally, are to be specially discussed at this meeting. I need only, therefore, express my hope that every one who practices surgery hereafter will make himself competent to transfuse safely, not only when a patient is bleeding to death after childbirth, or some accident or operation, but in other cases where the blood is insufficient in quantity or deteriorated in its composition.

A certain section of the community, well-meaning it may be, led astray by thoughtless enthusiasts or self-interested itinerant lecturers, vehemently asserts that if we are to perfect ourselves in these or in other modes of saving human life or lessening human suffering, we must only do so by practice upon the human subject; we must not, as a surgeon or a physiologist, take the life of a dog or a cat, a rabbit or a sheep, a pigeon or a frog, for any scientific purpose, or with the object of benefiting the human race. Anybody may slaughter oxen and sheep by thousands for human food in any way he pleases, oysters may be eaten alive, the pheasant or the partridge, the fox or the deer may be expressly reared to supply the sportsman with exercise or the amusement of killing—in a word, the lower animals may be devoted to the use of man for any purpose that is not scientific. But if a surgeon experimentally sacrifices half a dozen dogs or rabbits in the hope of improving some operation which may prevent the loss of human life or lessen human

suffering, he is branded as inhuman, and barely escapes the supervision of the police. Possibly, some of these benevolent individuals will voluntarily offer up themselves to our Committee on Transfusion, in the hope of perfecting the practice. Until they do so, they will perhaps be a little less clamorous if a few sheep or rabbits are used in the cause of humanity. With regard to splenotomy, pancreotomy, and nephrotomy, accident has proved that the spleen, or the pancreas, or a kidney may be lost without great injury to the human being. Surgeons have removed a wounded pancreas and enlarged spleens, and a diseased kidney has been extirpated on two occasions at least; but the operative proceedings are still imperfect. Are surgeons to be allowed to excise the spleen or a kidney of a dog or a rat, or will zealous members of some anti-vivisection society enrol themselves as candidates for that immortality which is gained by any one who immolates himself upon the altar of science?

What is to be the future of nerve-stretching in neuralgia, or of skin-grafting as an aid in cicatrization or the replacing of lost-tissue, it will be for you to say when sufficient observations have been gathered together. And I pass on to speak of some undoubted triumphs of British surgery in our own time. The cure of vaginal fistula was scarcely ever attempted thirty years ago, and the operation was seldom successful when attempted long after that time. It now, even in very unpromising cases, almost certainly ends well in the hands of many operators in many countries.

It would be false modesty if I were not to say boldly before this Association that I am proud of the share which British surgeons have had, and of the share which I myself have had, in placing ovariotomy upon the roll of successful surgical operations. Great leaders among us, Simpson and Syme, Stromeyer and Billroth, Velpeau and Nélaton, have shown a generous appreciation of our work. And can you imagine a greater pleasure to a surgeon than to hear the President of the Medical and Chirurgical Society speak last year of his improvements in the operation of ovariotomy as "one of the greatest achievements of surgery in this century, and that the influence for good extended through every department of operative surgery?"

While at the same society in 1850, Lawrence had asked whether this operation "can be encouraged and continued without danger to the character of the Profession."

Less than a quarter of a century after this denunciation, Lord Selborne, one of the most distinguished of our Chancellors, publicly stated the result of a calculation, that by my first 500 operations I had added something like 10,000 years to the lives of European women.

What number of operations has been done by other surgeons I know not; but, supposing that the same probability of the duration of life applies to the women who have recovered from operations I have done since the results of my first 500 cases were published in 1872, the gain would be about 18,000 years, and this by one surgeon alone, and by an operation which only thirty years ago was denounced as so "fearful in its nature, often so immediately fatal in its results," that, whenever performed, "a fundamental principle of medical morality is outraged."

I should not venture to say all this if it were not by way of encouragement to every one who hears me to do the work which comes before him, whatever it may be. Nothing could be more unlikely than that I, up till 1855 a naval surgeon, serving in 1855 and 1856 with the army in the Crimea, never having till that time treated a single case of ovarian disease, removing an ovarian tumor for the first time in 1858, and waiting three years before I had done ten cases, should now be able to say that I have completed the operation on 870 women.

And, what is still more gratifying, that I should be able, among the performances of the many surgeons who have been running the race with me, striving with generous rivalry to obtain the rewards of those who do good in their day and generation, to refer to the brilliant results obtained by my dear friend Thomas Keith—who, out of 241 operations, has saved 206 lives—a success hitherto unequaled in the history of any capital operation. How ovariotomy, since it has become so generally accepted here, has spread in America, in France, and Germany, indeed all over the world, I have tried to tell elsewhere, and I will not weary you by telling the story again, but I can not

pass from this part of my subject without expressing confident assurance that what the surgery of the present day has done for the treatment of ovarian tumors, the surgery of the future will do for that of uterine tumors. Already large fibroid and fibro-cystic tumors of the uterus have been removed in America by Atlee, Kimball, and others; in this country by Clay, Keith, Bryant, Thornton, Routh, and myself; in France by Kœberlé and Péan, quite in sufficient number, and with results sufficiently satisfactory to prove that we only require a better knowledge of the details of the operative procedure, and greater experience in meeting the various difficulties which may arise, to place the removal of uterine tumors by gastrotomy amongst the most most hopeful of the many lines of thought and action open to the operating surgeon of the future.

But I think those who study and are to become the conservative surgeons of the future must not be content with saving limbs only. It is life that must be saved. And the great lesson taught by the success of ovariotomy and of operations for the removal of uterine tumors is, that they must not be done except under the most favorable possible conditions, whether in private houses or in hospitals. We are only just beginning to reap the benefit of the results of the labors of the Health of Towns' Commission, and of the work done by medical officers of health all over the country; and a great deal more must be effected before we can ensure even to the most wealthy of our patients a plentiful supply of pure water, a room well warmed, well aired, and free from the presence of sewer gases, and security from the entrance of infectious disease.

In hospitals, the problem is still more difficult; whether the hospital be large or small, old or new. But we do know that over-crowding of any building is of more importance than its size. A large crowded hospital must be a more dangerous place for operations than a small one equally crowded; but a large hospital, where each patient has plenty of space and fresh air, would certainly be a safer place for an operation than a crowded hospital, even though much smaller. In the hospitals of the future, whatever their size may be, the patients must not be allowed to poison each other. And, for my own part, I would

rather operate in a clean, quiet, well warmed, and well ventilated building, be it large or small, without any antiseptic precautions, than run the risk of trusting to the neutralizing or destructive power of chlorine or iodine, sulphur or tar, borax or the permanganates, salicylic or any other acid, in a place tainted by the presence of sewer-gas or the seeds of some infectious or contagious disease.

I should have said more on this important subject of antiseptic surgery if the bearing of the germ-theory on infectious disease had not been so ably and exhaustively treated by Dr. Roberts in the Address on Medicine, and if in the surgical section a special discussion had not been arranged. But, as both these things have been planned as distinct parts of the meeting, I leave what would otherwise have occupied nearly the whole of this address to ask you for a moment to consider what must be the education of the men who are to advance the science and practice the art of surgery in the future; how some of the best of the men of the coming generation are to be induced to adopt this career.

I need not speak to such an assembly as this in Manchester, where all the essentials of a chartered University already exist, of the importance, or rather of the absolute necessity, that the surgeons of the future must be educated gentlemen; that we should so order our schemes of education, whether conjoint or not, as to bring into the Profession, as far as possible, young men who have had the advantage of the highest general culture to be obtained by an English education. Until this is secured, the flower of our University youth will still choose the church or the bar, the army or the navy, or some branch of the civil service of the State, where they at once take an enviable social position as members of an honorable profession, and where a successful career may lead to a seat in the House of Lords, to the pensions and titles freely granted to the fortunate soldier or sailor, and, more sparingly, to the meritorious civil servant of the Crown.

It is rather surprising that, without any of these inducements, and in spite of the taint of trade forced upon the Profession by the powers of the Apothecaries' Company, and its con-

tinued alliance with our Colleges and Universities, we still have abundant evidence of a rapid rise of the Profession in the social scale. Apart from examples at home familiar to us all, the marriage of the German surgeon Esmarch to a princess of his own country is even a less striking indication of a change for the better in the social standing of our profession abroad than the fact, much less generally known, that a royal prince by birth, Prince Charles Theodore of Bavaria, is a doctor of medicine, is known to be a clever operating ophthalmic surgeon, and has written a very able article, published in a late number of Virchow's Archives, on leucocytes in the substance of the brain in various diseases.

When German princes practice surgery, and a brother of an English earl, a Cabinet minister, is met with as a practicing physician, we may think less of the admission of members of our profession into royal and noble families, and look with more hope for recognition by the Government of services rendered by medicine and surgery to the nation. We shall not then have to notice anything so disheartening to a learned profession as the fact, that while for the affair of Magdala Lord Napier was honored by a title and rewarded with a pension, the extended average duration of life of the whole population and its actual increase, due to sanitary and medical science—far exceeding in importance the annexation of a province, or even of a kingdom—has earned for Simon the barren right, shared by many less honorably known men, of putting the two letters C. B. after his name, and William Farr still remains without any mark of national gratitude.

Why should a baronetcy be the highest titular distinction conferred upon members of our profession? Is Jenner or Paget less worthy of a life-peerage than any one of the eminent men who now sit on the bench of bishops, or any of the lawyers, soldiers, or sailors who have been rewarded by hereditary peerage? Can any member of the House of Lords do greater service to his country in that assembly than would such a wise and learned physician as Watson, who so very lately has proved himself capable of the highest efforts of statesmanship by his remarkable essay on the abolition of zymotic disease?

Since the health of the people is, or should be, one of the first objects of legislation and administration, the help of acknowledged masters of sanitary science is indispensable. That want, now manifest in the recent ill-devised Acts of Parliament, and the imperfect machinery put in action for their execution, must force upon the nation the conviction that medical science ought to be properly represented in Parliament, and especially in the House of Lords. None of our leaders have time for electioneering or the turmoil of party struggles in the House of Commons; whereas many of them are well fitted for the more dignified position, and would be quite able to devote their time and energy to sanitary legislation in the Senate.

And what a task lies before the medical statesman! Never, in the whole history of our profession, have we had so much work to do, such problems to solve, so many human beings dependent for their health on our knowledge and our care. The Roman empire in its greatest power sinks into insignificance in comparison with the dominions now under the sway of Queen Victoria, Empress of India. Two hundred millions of human beings in India, other millions in Africa, Australia, New Zealand, the islands of the Pacific, in Canada, and the West Indies are affected for good or for evil by the action of the sanitary advisers of our Government. At home, until we can disband the great army of paupers, we must at least save them from preventable disease, and the multitudes of our neglected children must be taught some elementary facts necessary for the preservation of their health and the prolongation of life. The day can not be far distant when this will be done by Parliament under medical guidance.

But until that day comes, it is for this great Association, for every member of it, to strive to secure to our countrymen and our dependents protection from the effects of incomplete and neglectful legislation. And there is ample encouragement to set to work at once, earnestly and with set purpose, acting in the spirit of the noble motto of the French Society of Surgery:

"Vérité dans la Science,
Moralité dans l'Art."

If, in the forty years since this Association was founded, the

great progress which I have so hastily and imperfectly endeavored to review has been made, what may we not augur for it in years to come? The Association had its early struggles, and has passed through them. It is now powerful and vigorous; its organization is almost complete, its resources are yearly increasing, and its influence, through its annual meetings, its branch operations, and the wide circulation of its invaluable Journal, is universally felt. The history of the past and the study of the present, alike help us to look forward with hope and trust to the future.

"Look not mournfully into the Past. It comes not back again. Wisely improve the Present. It is thine. Go forth to meet the shadowy Future without fear, and with a manly heart." *Brit. Med. Journal.*

CLINICAL RECORDS.

"Ex principiis, nascitur probabilitas: ex factis, vero veritas."

ART. I.—*Nitrate of Silver as a Topical Application in Acute Inflammation of the Testis.* By WILLIAM M. MASTIN, M. D., Mobile, Ala.

As a topical agent for the cure of inflammation, nitrate of silver ranks, most deservedly, at the head of the remedies now known to the practitioner; and since Dr. Higginbottom first employed it for this purpose, it usually enters very largely into all local applications for external inflammations. With its universal use and acknowledged superiority in these affections, I was somewhat surprised, in looking over different articles treating upon inflammation of the testicle and its efferent duct, that this substance was not even mentioned among the long list of remedies recommended, reliance being chiefly placed upon local abstraction of blood, the common cooling and evaporating lotions, with general antiphlogistic measures. My surprise was the greater, too, since orchitis is by no means an infrequent malady, and certainly one among the most troublesome affections which the medical man is called to treat, usually the source of severe

suffering to the patient; often running a long, protracted course, leaving the gland thickened and enlarged, with an obliterated duct, and, in some instances, even terminating in suppuration with complete destruction of the organ.

In an experience of a dozen or more cases of this trouble where lunar caustic was used, the relief of pain in a short time was so great, and the attack either so quickly arrested or entirely broken up in many cases, that I have been induced to give the result of a few of them.

Of the cases in which I have myself used the salt or seen it applied by others, I will mention several of the most striking, which will serve to illustrate the application of the remedy, its promptness in affording relief, and its general action. The following occurred in my own and the practice of Dr. C. H. Mastin:

Case I.— ——, a sailor, aged twenty-four. Admitted into the Hospital of the University of Pennsylvania, Philadelphia, service of Dr. D. Hayes Agnew, with blennorrhagia of two or three weeks' duration. Astringent injection and a balsam mixture directed. On the fourth or fifth day, after taking a good deal of exercise, he complained of a severe pain in the left testicle, which extended up the cord. Examination found the organ enlarged and exquisitely sensitive. The scrotum being put on the stretch, the testis was striped with the solid stick from the cord to the base of the gland, particularly on the under surface. Ordered the tumor to be kept wet with a solution of lead-water and laudanum; gave a mercurial cathartic and enjoined perfect rest. The caustic caused great pain for a short time, but within four or five hours all suffering had vanished, and he professed to feel as well as ever. In a few days, by pressure with adhesive straps and a suspensory bandage, the thickening began to disappear and he was discharged cured.

Case II.—George A., aged forty. After exposure to inclement weather, and the use of a bougie, was taken with an active epididymitis. Saw him on the third day. Knees drawn up, and suffering most intensely; testicle as large as the fist, tender, and scrotum inflamed. Considerable febrile movement. Ordered rest, a mercurial purge, and striped the tumor with the solid

nitrate. The burning from the caustic was intense for an hour or two, but after this ceased; all pain was gone and you could roughly handle the organ. The other testis became affected on the next day, and was treated in the same way—nitrate of silver stick and covered with lead and opium lotion, the relief being very speedy. In a few days compression was used, when he returned to his business, making a complete recovery.

Case III.—T. S., forty-two years of age. Has urethral stricture with slight discharge. Used a metal sound injudiciously, which caused inflammation of epididymis of right side. The physician in attendance used leeches, evaporating and cooling lotions, with antimony, etc.; but after the expiration of three or four days the trouble had not diminished a particle, and the patient was almost exhausted from continued suffering. At this time Dr. C. H. Mastin saw him. Nitrate of silver in a saturated solution was at once applied, and the entire scrotum enveloped in cloths wet with liq. plumbi subacet. dil. and tinc. opii. As in the other cases the relief was prompt, and in a short time he was again upon his feet.

Case IV.—A. B. W., a gentleman of robust health, twenty-four years of age. Contracted a gonorrhœa, which in its turn was followed by an epididymitis of both sides. Came under observation several days after the commencement of the attack. Was then suffering agony, and the affected organs were greatly swollen. High fever, nausea, etc. Several days were consumed with the agents usually recommended without affording relief. Nitrate of silver was then applied in solution, followed by lotion of lead and opium. After the smarting from the caustic had subsided, his former agony was found to be entirely relieved, the inflamed organs were no longer so painful upon pressure, and in three or four days he was up. On account of the long duration of the case, some time elapsed before the thickening of the ducts had entirely passed away, but with pressure by bandage and strapping little induration remains, and he is now perfectly well.

Case V.—Mr. R., twenty-eight years old. Blennorrhagia and a commencing epididymitis. Nitrate of silver in stick was promptly used. Pain relieved at once. In thirty-six to forty-

eight hours was moving about. Pressure with a tight suspensory bandage completed the cure.

Case VI.—B. L., a young man of twenty-two years. Tight urethral stricture at the bulb. Operation by Dr. C. H. Mastin relieved him, when he returned to his home. Eight months later orchitis came on, the result of cold and imprudence. He called in a physician, who prescribed the remedies in common use, but without benefit. Finally he telegraphed to Dr. C. H. Mastin for advice. A saturated solution of nitrate of silver was directed. The first application diminished the inflammation, but all tenderness not being allayed, another application was made, which gave entire relief.

Case VII.—Mr. B., a salesman; twenty-six years old. Contracted a gonorrhœa six weeks before. Treated by a medical man of this city. During treatment had several attacks of inflammation of the epididymis, which has never resumed its original size, still remaining tender and being occasionally painful. Consulted Dr. C. H. Mastin for his blennorrhœa. While under his care he again had another attack of inflammation, which yielded promptly to the stick nitrate, and although it was necessary to use larger steel sounds for the cure of his chronic discharge, he had no return of his former trouble, and is at this date as well as before his misfortune.

In several cases I have known the first application of the nitrate of silver to be only partially successful, but the second striping or painting invariably arrested the disease.

As to the mode of application, I should give most decided preference to the striping with the solid stick, as it causes much less pain than the solution, and can be the better localized, the latter being very apt to flow over the thighs and perineum, excoriating them and thus increasing the suffering.

To apply the caustic, the testicle should be grasped with the left hand so as to render the scrotum tense, then with the moistened stick the tumor is striped around from the cord over the gland, so that the stripes centre at the base, like the clefts in a melon. The escharotic should be applied with sufficient freedom to destroy the epiderm and encroach upon the derm, leaving a superficial slough which just involves the true skin.

The action of the silver must be the same as in any inflammation—a local antiphlogistic—but as to its real action nothing is positively known. Whether it acts beneficially as an astringent contracting the capillaries, as a counter-irritant, a supersedent or alterative remedy, we are alike ignorant; but that it does afford the most marked benefit in such inflammations is beyond doubt. From my own observation I can say that nitrate of silver locally applied in epididymitis or orchitis more speedily shortens an attack and relieves the pain attending it than any remedy with which I am acquainted.

PROCEEDINGS OF SOCIETIES.

"Etsi non prosunt singula, juncta juvant."

Christian County (Ky.) Medical Society.

Puerperal Eclampsia. Read by appointment before the above Society. By J. P. THOMAS, M. D., Pembroke, Ky.

Gentlemen,—The Society, by the dictum of its honored President, John C. Whitlock, M. D., has imposed upon me the task of opening the discussion of the subject selected for your consideration at this meeting—that of Eclampsia. But as his heart is so pregnant with love for his profession and charity for the shortcomings of its members, and as you do not expect or require of my pen an elaborate or exhaustive essay on so vast a subject, but will be content with a roughly outlined skeleton, the other parts, so to speak, to be added and filled in with the observations, experience, and reflections of the members composing your Body, I, consequently, on these conditions have undertaken the task of presenting for your consideration, criticism, and correction, a brief résumé of the literature of the subject, as well as some of my own reflections; including such views and conclusions as I may have formed as the result of such reading and study in regard to the malady we term puerperal eclampsia.

There is no disease in the nosological list to which the general practitioner is at any time liable to be called on to combat more formidable and alarming, both to physician and friends, than the one you have chosen as the subject of your deliberations on the present occasion.

The convulsive attacks peculiar to the puerperal woman are at once so dreadful, and as yet so inexplicable, that we meet the insidious and terrible foe with fear and trembling. Though there are several forms of convulsive disease that may and do sometimes occur during pregnancy, parturition, or the period of childbed, I shall notice only the one with such peculiar and well-marked characteristics (the features of which, when once seen, can never be forgotten) that its physiognomy is indelibly impressed upon the mind of the observer; and for this reason, if no other, I can scarcely comprehend the want of harmony that continues to exist among our most accurate observers. Nevertheless, its features have been variously interpreted. It is a disease that must have been observed and recognized since the dawn of medicine, and must have been always dreaded by the most experienced and skillful from the days of Hippocrates to the present time; and yet its cause, or causes, are still matters of dispute, still undecided, or unrevealed, notwithstanding the thousands of cases that have been studied by the ablest observers that our profession has produced. Consequently, strange as it may seem and really is, there are few if any disorders concerning the nature, cause, and course of treatment of which there is such diversity of opinion.

As remarked by Dr. Busey, of Washington, D. C., in his very excellent address on Obstetrics before the American Medical Association, "the pathology of puerperal eclampsia continues so involved by the confusion of conflicting opinions that the student is more confounded than were the builders at the tower of Babel."

I can conceive of no circumstances more trying to the physician than to find himself suddenly confronted by an attack of puerperal convulsions. I say suddenly, for this is their usual mode of appearance, and the signification of the word eclampsia is "I shine," or flush. More especially are these

attacks trying to the country physician, who has them to witness and combat alone, without counsel or aid from a professional brother, because there is no medical man just "around the corner," and no time to wait for a messenger to summon the nearest doctor, often miles away, but what is done must be done quickly.

Taking then into consideration its insidious approach, frequently without the least warning, its liability to attack any puerperal woman at any stage of pregnancy, and the diversity of opinion as to its etiology, pathology, and treatment, which is so evident from a résumé of the literature of the disease, I repeat you could not have selected a subject more worthy of your earnest and zealous investigation. The careful study of it is, perhaps, in importance beyond that of any disease to which woman is liable; therefore no opportunity of studying its mysterious phenomena should be lost, that a correct, scientific and harmonious rationale of its nature, etiology, and pathology may be established, and of course, as a consequence, a rational therapeusis for this detestable and execrable disorder provided.

After as careful a résumé of all the literature within my reach as the limited time allotted me (interrupted, as it necessarily has been, by professional obligations and other duties) would permit, with my own limited observation of the disease, I can not fully agree with any theory as to its cause yet offered; but occupy a position similar to the old lady who, when interrogated as to the probable agent that preserved her life on the occasion of her horse running down a steep declivity with her and buggy, and whether she attributed her escape from death to an interposition of Divine Providence or to the strength of the "britchen," said it was "sorter betwixt and between."

My position therefore is an intermediate, and I think conservative, one; rather eclectic; selected from the volumes of opinion such as seem rational and tenable from a physiological and common-sense standpoint, to which I add the views formed from observation and study of the disease; but to condense them within the limits of this paper is impossible; and to notice the various theories and answer the arguments advanced by the numerous writers to sustain their interpretations of the phenomena witnessed in

an attack of eclampsia (were I competent to do so) would increase this paper to the dimensions of a large volume.

I shall therefore only notice a few of the most plausible and fashionable theories that have from time to time been advanced and advocated by able and distinguished observers.

First, the mechanical theory, producing a flow of blood to the head as the cause of the convulsions; I will take the great and good Charles D. Meigs, the colloquial and at the same time eloquent and classical writer, as a sample of a class of observers who held these views. I select him because he did as much or more to elucidate and enrich the subject of the diseases incident to the parturient state as any other of his time. He squarely states it thus: "It is my unalterable conviction that puerperal convulsions are due to mechanical causes, aided by the hysterical influence innate in woman, developed as it is by the processes of gestation; that the pressure on the downward arterial and upward venous circulation by the gravid womb, aided by fæcal impaction, is the primary cause."

That the arterial obstruction causes a flow of blood to the brain, producing hyperæmia, and that the obstruction in the venous circulation by pressure on the mesenteric and emulgent veins may engorge the kidneys, producing congestion of the cortical substance and the Malpighian bodies within their capsules, resulting in a retention of urea and a consequent flow of albumen, producing morbus Brightii with uræmic poisoning and convulsions as the final result, is often claimed.

It is admitted that this is very ingenious reasoning as to the temporary production of Bright's disease by mechanical pressure; but do not all pregnant women have the same pressure as far as the gravid uterus is concerned? Do not the majority suffer with constipation and fæcal impaction? Yet comparatively few have convulsions. Besides, we know that in many cases the attack is not ushered in, or the convulsions do not occur, until after all pressure has been removed by delivery, and often after a free evacuation of the bowels.

Again, they frequently attack the woman in the first months of gestation, when the mechanical obstruction can not be considerable, and in cases where the strictest attention has been

paid to a regular evacuation of the bowels; so strict that fæcal accumulation was impossible.

I have seen two cases in which eclampsia was developed; in one at the fifth month, in the other as early as the third month of gestation, necessitating prompt delivery each time. In one they occurred in three successive pregnancies from the fifth to the eighth month; in the other in two, one at the third, the other at the sixth month. The first went to term in her fourth and last pregnancy, and was delivered of a living child without a convulsive symptom. The latter has had three full-term children and not a sign of eclampsia. It is proper to state that both ladies were bled at intervals during the entire course of their successful pregnancies as a prophylaxis, but I must say without any very rational reason for the practice.

The mechanical theory, *per se*, is untenable, for the additional, and I think principal, reason that pregnancy is not a pathological, but a purely physiological condition, and gestation a natural process. Consequently the great physician, Nature, has provided a prophylaxis against the evil effects of the necessary pressure of the gravid uterus; therefore the organism is adapted to the altered condition of things, and prepared to stand the encroachments of the enlarged uterus upon the abdominal as well as the thoracic viscera without serious inconvenience; just as the organism is supplied with additional digestive and circulatory powers that it may furnish nourishment for two beings instead of one, and sustain the development of the fœtus.

It is not improbable that the supplement of the fœtal circulation is one of Nature's modes of assisting in an equalization of the pressure, by depleting the mother's circulation in supplying the placenta and its vessels with blood; i. e., it is revulsive in its tendency. If it is mechanical, why do not ovarian and abdominal tumors of enormous size and of longer continuance than nine months produce eclampsia? They are also often complicated with albuminuria, and from the immense quantity of albuminous fluid they secrete, the general system must be necessarily depleted of albumen; yet we do not witness eclampsia in these cases of ovarian tumor. The fact that lends greatest credence to the mechanical theory is the general necessity

of emptying the womb of its contents before the convulsions can be arrested; but this will be noticed further on.

As to the hysterical element in the production of eclampsia, Dr. Meigs and all others who class it as a predisposing cause admit it to be innate in all women; if so, does it not predispose to this disease in all cases? I am sure I have witnessed puerperal convulsions in women who had never exhibited any symptom of hysteria; in fact all the cases I have ever seen, except one, were in very stout, robust women, and this seems to have been the observation of all writers on the subject, and accounts, I think, in a great measure for the beneficial effects of blood-letting in the past. I am satisfied that there are, and always have been since the first introduction of the sex by mother Eve, women as free from any element of hysteria as any of the opposite sex; as I heard one of those masculine old ladies remark to her daughter who was ill with typhoid fever, and requested her mother to walk more lightly over the room, as it excited her nerves: "My child, I thank God I was born when nerves were not fashionable."

It may be a predisposing cause of puerperal eclampsia proper, but I think it only produces its kind; i. e., what we recognize as hysterical convulsions, which is quite a different disease, both as to treatment and prognosis. Dr. Meigs and others account for what they term temporary morbus Brightii, and no doubt it is, by the congestion of the cortical portion of the kidneys and a sort of choking of the Malpighian bodies by compression of their capsules, producing a secretion of albumen in the urine; and that uræmic toxæmia is the secondary cause, for the reason that the paralysis of the kidneys thus produced prevents the excretion of any of the solids, and of course a retention of urea as one of them. If albuminuria or uræmic toxication, or intoxication, is the immediate cause of the convulsive attacks in the puerperal woman, why do we not see them in all cases where albumen is found in the urine? And why are they not oftener developed in cases of Bright's disease? Coma unaccompanied with convulsions, according to my experience, is of more frequent occurrence in all cases of uræmic poisoning; and I am inclined to the opinion that the few moments of coma,

occurring usually in the intermission between the convulsions, is the only evidence of the agency of uræmia or the retention of urea in the blood that we possess de facto; not that we do not constantly witness convulsions in chronic albuminuria, but that we see so many cases of pregnant women with albumen in their urine who do not have convulsions. It is a well-known fact that renal congestion, from whatever cause, has a tendency to produce an increased secretion of albumen. But albuminuria can only be the cause of eclampsia by being eliminated by the kidneys from the blood in such quantities as to deteriorate that fluid to such an extent as to effect in some way the proper or normal functions of the cerebro-spinal centres, and through their abnormal excitation produce convulsive movements of the muscular system.

It may be a peculiar irritability of the nervous system in the pregnant state, added to the alterations in the quality of the blood produced by an excess of solids and a deficiency of albumen. Cazeaux considers albuminuria as the principal predisposing cause, and uses this language: "The organic conditions which produce albuminuria are certainly the most, I would even say the only ones, favorable to the production of eclampsia." "This proposition, which at present is incontestable, explains the influence of certain circumstances which most authors have mentioned as predisposing causes; thus among the latter have been classed as one of the most active œdema of the lower extremities when considerable, but above all, general infiltration invading the body, upper extremities, and face." "It is now a well ascertained fact that this general œdema is almost always connected with an alteration of the urinary secretion, and that only when accompanied with albumen does it give rise to eclampsia."

Robin has endeavored to demonstrate that the albumen of Bright's disease is different from that of pregnancy. He says that the albumen of Bright's disease, when brought in contact with the oxide of copper, assumes a redish violet color, while the urinary albumen of pregnancy does not exhibit such change of color; but he admits that the coägulation by heat and nitric acid are the same.

May not the violet red color be imparted by the action of the reägent upon some other morbid matter contained in the urine of a patient with Bright's disease, and not contained in the puerperal urine? The chemical composition of albumen is the same; i. e., albumen is albumen, wherever found. They all admit, however, that there is a reflex nervous irritation, as the result of the waste of albumen and the accumulation of urea; that it is or may be the secondary cause of the convulsibility.

I have discovered albumen in the urine of several puerperal women who had not only no symptom of eclampsia, but who had no troubles but those incident to natural labor. I am therefore convinced that albuminuria, per se, never produced eclampsia; but that the conditions or circumstances, let them be what they may, are sufficient to cause congestion of the kidneys to such an extent as to result in excessive elimination of albumen from the blood, together with the peculiar irritability of the sensitive uterine nerves, which I believe to be always their condition in this disorder, and may, by a reflected excitation of the spinal motor centres, produce puerperal convulsions.

That albuminuria may simply show a condition of system predisposing to the disease, that it is oftener only an accidental complication, I admit; for I have treated two cases of violent eclampsia, in which there was not a trace of albumen in the renal secretion, and the secretion not scant either.

Dr. H. Otis Hyatt, in the "Virginia Medical Monthly" for May, 1877, also mentions Robin's experiments, before alluded to, after giving the history of a very remarkable and instructive case of a lady who had three attacks of eclampsia in three successive pregnancies, each occurring about the same period of gestation, near the sixth month; each time she was prematurely delivered by dilatation of the os, under chloroform. In her fourth pregnancy she went to full term, and was delivered without an eclamptic symptom, notwithstanding albumen had appeared in the urine in "large quantities" as early as the middle of the third month, which is very unusual. The Doctor concluded to try to carry her to full term. To accomplish this he placed her upon a regimen of milk exclusively, and attended to "her surroundings." To the milk diet the

Doctor seems to attribute the successful termination of her pregnancy, because the exclusive use of milk in her case caused the albumen to disappear from the urine, which it does or always lessens the amount in cases of Bright's disease; but like Dr. Hyatt, I can not explain it, except it be that milk is the only article of diet that contains all the elements of food, and in which nature has proportioned and combined these elements so accurately as to adapt it to an exact equalization of the necessary elements of the blood maintaining its quality, the albumen of milk being represented by casein, which chemically differs from albumen in not containing phosphorus, and its constituents are slightly different as to proportion. Milk, besides containing all the elements of food, possesses all the alkaline phosphates, some of the alkaline chlorides and carbonates, with a considerable trace of that all-important element of the blood, iron.

So we see that milk contains all the constituents of the blood necessary to the nutrition of the tissues and for the production of animal heat; also that it contains many solids and fibrin-makers; consequently milk may, by keeping up the fibrin and solids of the blood, prevent the excessive elaboration of the serous elements.

Dr. Hyatt says: "Before resorting to any active measures during the successful gestation of my patient, I determined to try to carry her through to full term by regulating her diet and attending to her surroundings." Both were aids, but I think his attention to her surroundings had more to do with her completion of pregnancy and her escape from convulsions than did the diet; besides, the liability to eclampsia decreases from the first to the last, as I believe all agree that they occur in the primapara over three to one; some authors show statistics of seven-eighths of the cases occurring during the first pregnancy. The Doctor may well say: "Of course we can not say positively that this patient would have had eclampsia in this her fourth pregnancy simply because she had them three times before." "This kind of argument would savor too much of the 'post hoc propter hoc'; but the presence of albumen in the urine of this patient, together with the fact that she did have

the convulsions in her former pregnancies, affords rather strong presumptive evidence that she would have had other convulsions this time if she had not been put on milk diet."

The milk diet in all such cases is certainly worth a trial, and Dr. Hyatt's paper will richly repay a careful perusal, as the part he makes the vaso-motor system of nerves play in the production of eclampsia is rational and in accord with my own views, except I do not consider it necessary to exert pressure upon the ganglia in front of the sacral foramina to produce a disturbance of the vaso-motorial agents. His paper at the same time proves more for the uræmic theory than any I have seen.

Until recently I had concluded, on account of the popularity which this albuminous theory had attained, that we would soon cease to hear of this disease as connected with the puerperal state, but only as one of the numerous complications of renal disease.

But this hobby, albuminuria, was more in fashion a few years since than it is now, I think, and was so persistently ridden by many, especially by the young M. D.'s fresh from college, filled to overflowing with theory, without a practical idea, that I believe the lives of a number of women were sacrificed by loss of valuable time spent in testing the urine for albumen. Thus instead of riding the hobby to death, as is usual, they rode their patients into eternity on it.

As an illustration of the extent of this mania for albuminous urine, I will give you two examples that came under my observation. Some years since (1868) I was called in consultation with a young medical friend (fresh from his alma mater) in a case of violent eclampsia, the paroxysms recurring every thirty minutes. She was in her sixth convulsion when I arrived. I found my young friend intently engaged in heating some of the patient's urine over a lamp, with a vial of nitric acid at hand, but giving no attention to the patient. I inquired what he had done to arrest the convulsions. His answer was, "Nothing yet," but that as soon as he could ascertain whether her urine contained albumen, he would commence the treatment, as he would be better prepared to treat the case scientifically.

He had not even placed a cork between her teeth as a pro-

tection to her tongue, which I found terribly lacerated. While he continued his chemical investigations, finding her pulse full and tense with injected eyes, I opened a vein and extracted sufficient blood to greatly reduce its pulsations and lessen its calibre. After placing about fifteen grains of calomel on her tongue, I applied chloroform almost continuously for several hours; but, suffice it to say, I had the satisfaction of seeing our patient recover with only two additional convulsions after the commencement of the treatment. My friend was never, I believe, exactly satisfied whether his patient's urine contained albumen or not.

In the other case, more recently, a young doctor was sent for by the family to consult with me in a case of eclampsia, in which the convulsions were very frequent and alarming. Before his arrival I had bled the woman almost to syncope, and was administering rather large doses of a solution of chloral and bromide potassa combined. On his entering the room, his first inquiry, in a whisper, was: "Doctor, have you tested her urine for albumen?" I answered there was no time for testing anything but the therapeutic powers of the best remedies of which I had any knowledge in arresting the paroxysms, and in this case these remedies sufficed. She recovered.

From the tenor of all the writings on eclampsia up to within a few years, including in the list such names as Dewees, Meigs, Denman, Ramsbotham, Churchill, Meriman, Collins, and many others among the older writers, congestion of the brain was the trouble, and the lancet was the remedy. But alas for poor eclamptic women! within the past two years the experimental physiologist has demonstrated the opposite of all this to be the true pathological condition of the brain, and that instead of hyperæmia, as taught and successfully practiced by the fathers, we have anæmia; and, strange to say, this absurdity has many advocates among the most able and distinguished physiologists and pathologists of the present day.

It is true that the eminent physiologist and special pathologist of the nervous system, Dr. Brown-Séquard, as well as others, has demonstrated that the condition of the brain in convulsions is one of anæmia; but this is the result arrived at by experi-

ments in comparative anatomy, and I can not but think that the experiments upon animals by vivisection, though of great benefit in a physiological point, have misled the student in the diseases incident to man; and for my part I am unwilling to change long-established views in pathology simply on the appearances of the brain of a rabbit that has been tortured into convulsions. This anæmic doctrine is rapidly gaining ground; any pathological condition is anæmia. We have anæmia of the capillaries; anæmia of the arteries; anæmia of the nerve centres. Blood clot does not now produce paralysis from pressure, per se, but is to be accounted for by the anæmia of the brain as the result of sudden compression of its capillaries. The experimentation, therapeutically or pathologically, upon the lower animals, is not trustworthy as applicable to man or his diseases, for the reason that comparative anatomy teaches the wide difference in many instances in the anatomical relations existing in man and animals; for instance, the carotids in the rabbit (the animal upon which most experiments are performed) we are taught supply only the external head, while the brain is supplied with blood by the spinal or vertebral arteries. We know also, and so does every sportsman, that arsenic will not kill a dog, but fatten him and cure his mange; and every farmer is aware of the fact that the same poison may be given with impunity to the hog without producing a poisonous effect.

Did the limits of this paper permit, a small volume could be devoted to this subject of anæmia as the cause of eclampsia; but the simple mention of the remedies that have proven most successful in arresting it should be sufficient to dispel this dogma from the mind of any thinking doctor. Chloroform, now the "sheet-anchor" since the sheathing of the lancet, does it not deplete the brain of blood, as has been often proven, and Nélaton's method of resuscitation conclusively demonstrates?

Bromide of potassa—what is its effect upon the cerebral circulation? It unquestionably lessens the amount of blood in the brain, and so does chloral, quinine, and all the present therapeutics of eclampsia.

If it was anæmia under the old practice, why did not all the women who were bled die? If it is anæmia now, why do they

not treat them exclusively with stimulants and nerve tonics, as strychnia, electricity, etc.?

If it is anæmia of the brain that causes eclampsia, why is it that every case of excessive post-partum hæmorrhage does not have convulsions? I venture the assertion that though nearly all of you have seen many cases of post-partum hæmorrhage, yet none of you have ever seen a case of eclampsia among the number produced by the loss of blood.

Therefore no matter what the depletion of the brain of animals by bleeding to death may produce in them, convulsions or not, we all know that post-partum hæmorrhage in woman does not cause or result in eclampsia. I have unfortunately seen two cases die of hæmorrhage, but without a twitch of a single muscle. This was before the introduction of the recent specific hæmostatics, such as persulph. iron, ferric. alum, iodine, etc., and the direct method of application into the uterine cavity.

After all their mechanical, albuminous, and anæmic theories, the latter a very anæmic one, we will have to return to the brilliant theory of Marshall Hall—"the reflex-motor action of the nervous system"—for any near approach to a solution of this vexed question of the cause or causes of puerperal convulsions. This grand theory of the greatest physiologist and the master of the nervous system, so to speak, is elaborated and applied to eclampsia by Drs. Tyler Smith, Thompson, and others, whose explanation of the causes of puerperal convulsions are more rational, and accord better with the phenomena witnessed in a case of eclampsia than any yet advanced. Dr. Tyler Smith sums it all up in these words: "The true puerperal convulsion can only occur when the central organ of this system, the spinal marrow, has been acted on by an excited condition of an important class of its incident nerves; namely, those passing from the uterine organs to the spinal centre, such excitement depending on pregnancy, labor, or the puerperal state." While the spinal centre remains under the influence of either of these stimuli, convulsions may occur from two series of causes; those acting primarily in the spinal marrow, or centric causes; and secondly, those affecting the extremities of its incident nerves; causes of excentric or peripheral origin.

It is to the presence of the gravid uterus we are to attribute this disease; not to an injured brain produced by sympathetic mechanical pressure, nor to the poisonous effects of retained urea, or to the vitiation of the blood by a waste of albumen, nor to a depletion of the brain of its blood supply—anæmia. No injury of the brain can produce convulsions so long as the spinal system proper is not involved. I make this statement, notwithstanding the present effort of experimenting physiologists to demonstrate that the ganglia at the base of the brain are not the controlling agents of the muscular system, but that the cerebral convolutions are the seat of this power, or they are endeavoring to transfer this control of the muscular movements from the cerebellum to the cerebrum.

It has been so long a settled fact that the cerebellum and its ganglia are the seat of motor action and influence, that I can not accept Dr. Ferrier's and others experiments as conclusive in transferring this influence to the convolutions of the cerebrum, where we have always located will force—the seat of the intellectual and not the animal movements.

We must, therefore, without more conclusive evidence than the experimental vivisectionist has or can produce, adhere to the old theory that the cerebellum and its ganglia are the controlling agents in the production of muscular movements. And to the peculiar irritability of the uterine system, transmitted to the spinal system by the incident nerves of the excito-motor system and thence to the medulla oblongata, we attribute the eclamptic phenomena.

There is in every case of eclampsia a morbid irritability of the womb, either from hyperæmia or anæmia, kept up no doubt by the presence of the fœtus producing distension and tension of these irritated sentient nerves causing the excito-motor radiation; first by reflex irritation to the spinal centre, and then through it, as an excito-motor centre, sends the irritation over the whole muscular system.

Ramsbotham was not on a very cold trail as to the location of the seat of the cause of this scourge of the puerperal woman when he says, after enumerating all the then known or imagined causes—1860: "But the affection, in my opinion, origi-

nates most frequently in some deranged state of the uterus itself, probably in its nervous system, and consists in some irritation propagated from that organ to the brain." The spinal centre he should have said.

Of the symptoms of this terrible malady it is unnecessary to speak, as all have seen the disease, I suppose, and if so, you need no description of it, for when once seen it is indelibly impressed on the mind; and you have only to make the mental effort, and you can see your patient as she appeared in her contortions, though it be years ago. The treatment now-a-days, owing to the confusion of the pathology, is involved in the same obscurities. One treats all his cases with quinine; another with veratrum; another with opium; a fourth with chloral; a fifth with chloroform; and occasionally we still hear from an old blood-letter still proclaiming the virtues of the lancet: *Id est omnis.*

The time was when there was harmony in the treatment; when all were in accord as to blood-letting in eclampsia; but now it has few adherents, and many opponents. I well remember my first case, a terrible case of what might be termed post-partum convulsions, though they began their onset before delivery; but continued so long afterwards that this term would not be inappropriate. The child was born before my arrival. She was in her fifth paroxysm; there was complete opisthotonos; tongue mangled; the family in such a state of excitement that nothing could be learned from any one. Her pulse indicating it, I corded her arm with a strip torn from the sheet on her bed, and without waiting for a basin, opened a vein, allowing the blood to flow on the floor until the vein felt like a ribbon, when, with the assistance of an old negress, I prepared an enema of am., tinct. valerian, and assafœtida, and while in the act of administering it, discovered that she had "flooded" immensely. I administered chloroform intermittingly for several hours, after which the convulsions were arrested for about twelve hours, she remaining in deep coma. On coming out from under the influence of the chloroform she was seized with another convulsion, but milder in character. Continued the chloroform and gave quinine and whisky enema every two hours. In all she

had twenty convulsions, each averaging about twenty minutes in duration, with an intermission of thirty or forty minutes, during which she remained in a state of coma. Her recovery was tedious and prolonged, having an attack of phlegmasia dolens with partial paralysis of the right side; in fact lost the use of both lower extremities for over three months; but under tonics—strychnine, iron and electricity, with ale and wine, she finally recovered, and has given birth to six children since without a symptom of eclampsia.

I attribute all of her sequelæ to the immense loss of blood, and *even then* had I been aware of the excessive uterine hæmorrhage I would not have used the lancet. But this case illustrates the mania for blood-letting at that period—twenty-one years ago. It has been my misfortune to witness fifteen cases in twenty-two years of active practice, and I sincerely hope I may never have to treat another case, though fortunate, as only one of the number was lost.

The correct principles of the treatment of eclampsia, in the present state of our knowledge of its pathology, are embraced in two words—experience and common sense. There are cases yet that demand the free use of the lancet. They are not frequent; cases in which chloral would answer a better purpose than chloroform; cases in which large doses of the bromides may answer; but for the large majority of cases I would rely upon chloroform as the grand successor of the lancet.

I have seen one case in which I believe quinine cured the patient, and I believe there are cases in which it is the most reliable remedy. To treat eclampsia, I should desire to be within call of the following therapeutic agents: 1. Chloroform; 2. The lancet; 3. Veratrum viride; 4. Hypodermic syringe; 5. Chloral; 6. Opium; 7. The bromides. Although the lancet is placed second in the list, it might not be used once in ten cases. I always administer a full dose of calomel (from ten to twenty grains) for its cholagogue and cathartic effects. I believe that chloroform, after the emptying of the womb of its entire contents, will meet more of the indications than any other agent; but the prompt evacuation of the contents of the uterus should be accomplished as soon as possible, for the reason that it is the

cause which keeps up the excitation, by distension and compression of the sentient uterine nerves.

But if the brain was threatened by effusion or too much engorgement after the free use of chloroform, which no doubt in plethoric women often happens, as the result of reflected irritation to the cerebral circulation, I should not hesitate to use the lancet boldly in preference to other temporizing means; but in many cases I have no doubt but that the subcutaneous injection of veratrum viride would control the circulation sufficiently to protect the brain from undue blood-pressure; it has been used frequently (more especially hypodermically) with reported success. I have had no experience with the remedy in this disease, and would fear abscess from its subcutaneous administration.

Gentlemen, the point of first consideration in the treatment of this disease is to guard the brain, which is best done by controlling nervous excitation. Chloroform meets both indications at any stage of the disease. It depletes the brain and controls nervous action more effectually than all other remedies; first, by its paralyzing effect upon the heart; secondly, by its sedative powers over the nerve centres. But if albuminuria be the cause, as an aid to diagnosis the ophthalmoscope becomes a valuable addition to our means of diagnosing eclampsia in advance, probably even before albumen could be detected in the urine by the most delicate test; for we know that ophthalmic surgeons have diagnosed disease, and more especially Bright's disease, by the appearance of the retina. Consequently the advocates of albuminuria should study the use of this wonderful instrument, that they may know beforehand, and even without the necessity of an examination of the urine, that the poor woman is doomed to an attack of eclampsia, for albuminuric retinitis has recently been observed, judging from the reports of ophthalmic surgeons.

Addenda.—Since this paper was read I have received from the accomplished author, Dr. Henry F. Campbell, of Augusta, Georgia, a paper—"Blood-letting in Puerperal Eclampsia"—in which he elaborates fully the albuminous, but more especially the anæmic theory of this disease, and I think conclusively

disproves the latter by his simple experiments upon the domestic fowl, if we could admit such experiments to be conclusive; but in these, showing that convulsive movements are not produced by cutting the throat, leaving the spinalis uninjured, and that it is not hæmorrhage that produces the convulsive movements of slaughtered animals, but injury inflicted upon the brain or the spinal cord. Dr. C.'s paper is scientifically and carefully prepared, combining the practical with the theoretical in an eminent degree.

After a much more elaborate and learned dissertation on the causes of eclampsia, he arrives at much the same conclusions as those expressed in this paper, which is gratifying to me; it being pleasant to find I have coïncidently expressed similar ideas with so distinguished an authority as Dr. Campbell.

He terms it "increased polarity and increased responsiveness to near or to distant excitor impressions," which is essentially the same as reflected irritation from one pole—the uterus—to the other pole—the spinal centre.

Gentlemen,—In conclusion, I think I can safely say that modern research has added much to the safety of the eclamptic woman and greatly lessened her sufferings, notwithstanding the statistics as noticed by Dr. Campbell do not show so large an increase of recoveries as we might expect; sixty-five under the old, and only eighty-nine under the new treatment. But an increase of twenty-four per cent. of recoveries is worth all the labor that has been expended in investigations in this direction.

Kanawha Medical Society.

At a special meeting of the Kanawha Medical Society, Charleston, West Va., held at the office of Dr. Comstock, on the 23d May, 1877, Dr. Spicer Patrick in the chair, the following preamble and resolutions were unanimously adopted:

WHEREAS, It has pleased Almighty God to remove by death our late friend and professional associate, Dr. A. D. McChesney—

Resolved, That we regard this dispensation with the deepest sorrow, and will ever deplore the removal of one so useful and honored, in the prime of life and in the midst of a successful and bright career.

Resolved, That we entertain a high sense of his ability, his integrity, and untiring industry in his profession.

Resolved, That we cherish his memory as a good man, emulating his virtues as a citizen, friend and Christian.

Resolved, That we deeply sympathize with his family in their irreparable bereavement.

Resolved, That copies of these resolutions be sent to the family of the deceased, and to our city papers, the "Virginia Medical Monthly," the "Richmond and Louisville Medical Journal," and the "American Medical Bi-Weekly."

W. P. Ewing, M. D.,
J. T. Cotton, M. D.
A. E. Summers, M. D. } Committee.

Lawrence Carr, Secretary.

ORIGINAL CORRESPONDENCE.

"Sit mihi Fas scribere audita."

Sebastopol, Sonoma Co., California, August, 1877.

Prof. E. S. Gaillard:

Dear Sir,—You are aware that we live in a progressive age, and our system of medicine is keeping pace with other sciences, but will never achieve perfection. I started out from Transylvania Medical University thirty-one years ago to battle with diseases, and I have witnessed diseases in all their varied forms. I was instructed by my old preceptor (Prof. Benj. W. Dudley) that nearly all diseases were caused by a derangement of the "chylopoiëtic viscera," and it was necessary in such cases to correct the derangement by the use of calomel, antimony, etc. Being fresh from college, I of course had a great deal of confidence in my professional skill, and supposed that I could almost raise the dead with suitable drugs; consequently I "stuck out my shingle" in Barboursville, Ky., and in a short time after I had located I was solicited to visit Mr. Henry Bartow's family on Indian Creek. The messenger was a young lady, who came on horseback without a saddle. I informed her that I had no medicine, but she could go back home, and I would procure some medicine and come on as quick as possible. I went to my friend, Dr. Samuel F. Miller, who was then practicing medicine in Barboursville, but now occupies a much more honora-

ble position as one of the Judges of the Supreme Court of the United States, and I procured from him a little calomel, jalap, antimony, and laudanum, and started out on my first visit to see a patient. When I arrived I found the most deplorable and destitute family I ever saw. The father, mother, and all of the children were more or less diseased. They had not had a supply of nourishment, and had been accustomed to eating slate rock, and were very pale. Their extremities were swollen as though they had dropsy. Having been informed by Prof. Dudley that nearly all diseases were caused by a derangement of the "chylopoiëtic viscera," and that we should correct the "alimentary canal," by the use of calomel, antimony, etc., I commenced on three of the children, by giving each of them a dose of calomel and jalap. When I returned the next day, in the place of finding the cause removed and my patients better, two of them were on a rapid course to the cemetery, and when I returned the next day (as a Californian would say) "they had passed in their checks." I here learned a lesson that I have never forgotten; that was, the importance of a correct diagnosis. I of course changed my course of treatment; and advised the family to send to their neighbors and get a supply of provisions, and give the little boy, who had survived my heroic treatment, as much nutritious diet as his stomach would digest. The neighbors were very kind, and gave them a supply of provisions, which was all they needed.

A short time after I located in Barboursville I was solicited to visit a lady on "Poplar Creek" who was expected to be confined. When I arrived I noticed several old ladies come out of the house; one of them had on spectacles. They seemed to be surprised to see me, a young man, as they expected to see Dr. Miller (I hope the Doctor will excuse me for insinuating that he ever practiced medicine). Well imagine my surprise when I entered the house and ascertained that the case was a lady expecting to be confined. I then wished myself a thousand miles away, but I knew that under the circumstances I had to "face the music." There was a jug of rum on the table, and I was invited to take a "smile." I did so with pleasure, and the rum gave me nerve to "face the music." So I drew my chair

up close to old Mrs. Mackey (the lady who had on the spectacles) and inquired if she was not an "old granny lady." She said she made pretensions in that way in cases of emergency. Well, said I, it may be possible that I pursue a different course as an accoucheur to yourself. What course do you pursue? She seemed to know that I was young and inexperienced in such cases, and informed me all about her course in making an examination, and after the child is born how she tied the umbilical cord in two places and cut between the knots, and about taking away the placenta, putting on the bandage, etc. The fact is, I had read a great deal about the duties of an accoucheur, but the practical experience, with the instructions from "old Mother Mackey" on that occasion, gave me more information than I ever could have learned from books and lectures. It being a first confinement the case was tedious. When I made the first examination I could not feel anything, and so expressed myself to Mrs. Mackey. She said: "Young man, you will feel something like your fingers (putting the ends of her fingers of the left hand together, and putting the fore-finger of her right hand on the ends, like this, which is the womb) that contracts or opens when she has good expulsive pains, and will continue to open until the child is born, etc."

Yours respectfully, B. B. ALLEN, M. D.

LALLERSTEDT MANOR, DE KALB CO., GA., August 3, 1877.

Prof. E. S. Gaillard:

Dear Sir,—I see an article in June No. of the "Richmond and Louisville Medical Journal," for 1877, "A Contribution to the Study of Puerperal Convulsions," by Dr. W. D. Hoyt, of Rome, Ga., and I for one return thanks to the Doctor for his able article. It is one in which the whole profession should feel a deep interest. The above article appears to be to show that quinine will control convulsions. I will add one case to his list.

On July 9, 1877, I was summoned to go in great haste to see Mrs. M., who lives about five miles distant, with instructions to bring my instruments. I went as speedily as a horse could carry me, but just as I got to the house the child was born, and

the lady went into a convulsion and remained unconscious for an hour by the watch, at which time she was made to understand that I wanted her to swallow some medicine. I then gave her twenty-five grains sulph. cinchonia in a little water; in about fifteen minutes she complained of feeling curious, and the pupils of her eyes began to dilate, and I let her inhale chloroform a little in an hour from giving the first dose of cinchonia. I gave ten grains more in another hour, and repeated the ten grains during the two hours. She made two more attempts at having spasms, but by inhaling chloroform after the second, she came all right. She was a woman who enjoyed fine health; never felt ill a moment while carrying the child. Her age was thirty-five years, and it was her first child. She did not fully recover her mind within six hours after she was seized with convulsion; was in labor eighteen hours, and was attended by a gentleman who had studied medicine but never graduated, and was her father He attends to a great many ladies in confinement.

Some may say that she might not have had another convulsion, but as Dr. Hoyt tells by the pulse, I can tell better by the eyes, for the pupils will begin to dilate as the spasm commences to return. The medicine produced no bad effect, except to dilate the pupil for an hour or two, so that she could not look at any object a great while; it would apparently vanish.

Respectfully yours,

T. L. LALLERSTEDT, M. D.

PHILADELPHIA, September 7, 1877.

Dr. E. S. Gaillard:

Dear Sir,—In August No. of the "Richmond and Louisville Medical Journal" you notice Dunglison's Reference Book, and do not give our names as publishers, and also say that it can be had from the author. Will you please make the correction with reference to the publishers and oblige,

Yours, most respectfully,

LINDSAY & BLAKISTON.

CHEMISTRY AND PHARMACY.

"Diruit, ædificat, mutat."—Hor.

Viburnum Prunifolium.*—The following article is taken from the Gynæcological Transactions for 1876. It was read before the American Gynæcological Society, by Edward W. Jenks, M. D., Professor of Medical and Surgical Diseases of Women, and Obstetrics, Detroit Medical College.

Among the most ornamental of our native shrubs is a plant belonging to the well-known genus, viburnum—the same which furnishes our familiar "snow-ball bush," the "cranberry-tree," and the "sheep-berry—to which botanists have given very appropriately the specific name "prunifolium" ("plum-leaved").

Its erect, tree-like habit of growth, the regular form and delicate toothing, but more especially the glossy green of its leafage, render it an attractive object throughout the season, and it is conspicuous for beauty when, in the early spring, it puts forth its dense clusters of snowy blossoms. It is indigenous in our Southern and Western States, where, like its Northern congener, viburnum lentago, or sheep-berry, it is generally found in dry copses and open woodlands.

Only within a few years has this plant been brought to the notice of the Profession as a valuable therapeutic agent, and it has already won for itself a high place in the favorable estimation of the few who have learned its virtues by practical experience.

The portion which is used in medicine, is the bark of the root and the bark of the young shrubs and newly-grown twigs, but if procured in the proper season, the bark of the root is to be preferred.

Dr. Phares, of Newtonia, Miss., in 1866, wrote an article on the uses of the viburnum, which was first published in the "Atlanta Medical and Surgical Journal," and subsequently appeared in the "Detroit Review" for December, 1866, the "Bos-

* Botanical name, viburnum prunifolium; common name, black haw; habitat, the Southern and Western States; medicinal part, bark of the root and twigs.

ton Medical and Surgical Journal" of October 10, 1867, and other medical journals of the country.

Dr. Phares attached particular value to this remedy for the prevention of abortion. He designated it as a "nervine, antispasmodic, tonic, astringent, and diuretic," and adds: "But it is particularly valuable in preventing abortion and miscarriage, whether habitual or otherwise; whether threatened from accidental cause or criminal drugging. It tones up the system, preventing or removing those harassing nervous symptoms that so often torment and wear down the pregnant woman and disqualify her for the parturient effort. It enables the system to resist the deleterious influence of drugs so often used for the purpose of procuring abortion."

He further alludes, in the same connection, to the habit common among the negro women on some of the Southern plantations, of taking a decoction of gossypium, or cotton root, for the purpose of procuring abortion, and says: "Some farmers on whose plantations I have used the medicine, and who have seen much of its effects on negro women who had always managed to miscarry, declare their belief that no woman can possibly abort if compelled to use the viburnum." "This may be claiming too much for it," he adds, "but it has certainly prevented abortion in every case in which I have ordered it for the purpose."

About the time Dr. Phares' article appeared in print, he sent some of the drug to the editors of the "Review," of whom I was one, requesting that its virtues might be tested. My associate, Dr. Andrews, and I used it in a number of cases of threatened abortion, and were so well pleased with its effects, that I have ever since continued to rely upon it as one of the most efficacious remedies we have for this trouble.

Of course no intelligent physician expects that when an abortion is fairly begun by detachment of the ovum, or when a portion of it is extruded from the uterus, any remedy will prevent its ultimate expulsion; the mischief is already done; the vital connection of the fœtus with the mother is destroyed, and no measure can preserve its life.

Dr. Phares, in the paper alluded to, relates a number of cases

that illustrate the value of viburnum. I have prescribed it myself in scores of cases, where I should have little hope of success in following the usual routine of treatment, and the results have more than fulfilled my most sanguine expectations. I shall not overstate the fact if I say, that no one remedy or means has proven of equal value in my hands—and I have tried faithfully all the common and time-honored methods of treatment.

Dr. Andrews, of Detroit, with a large family and obstetrical practice, informs me that he considers viburnum an invaluable prophylactic against abortion; he places more reliance upon this than on any other remedy at our command. Several other practitioners have expressed to me their opinion of its value in similar terms.

That viburnum has a powerful influence in preventing threatened abortion appears, therefore, to be a fact well established. I could myself relate case after case in illustration of its efficacy, but the mass of evidence already accumulated and in the hands of members of our profession would render this a superfluous task.

I am convinced, however, from conversation with physicians of large obstetrical experience that the number of those who are practically familiar with the drug is extremely small. I have myself induced a number of my professional acquaintances to give it a trial, recommending it especially in those cases where abortion has become habitual with a woman, and I believe that none who have been persuaded once to test its efficacy, are now willing to omit viburnum from the list of those remedies which they regard as indispensable. It is for the reason that an agent, which has stood the tests of time and repeated experience in the hands of a few, has for some unaccountable reason not become universally known, that it is now brought to the attention of this Society.

Where the habit of abortion has been formed, my mode of prescribing the viburnum is to have the patient take from half a teaspoonful to a teaspoonful of the fluid extract four times a day, beginning at least two days before the regular menstrual date, and continuing it not only during the usual period of the catamenial flow, but two days longer than that discharge con-

tinues when the woman is not pregnant. Where there are indications that an abortion is imminent, the fluid extract can be administered in teaspoonful doses every two or three hours as long as its use seems to be demanded.

The writer would designate viburnum prunifolium as a uterine sedative, whose action is as pronounced as is that of ergot in causing uterine contraction. It is not alone in the prevention of abortion that it proves, by virtue of this peculiar sedative action, a most valuable therapeutic agent. It proves equally efficient in the treatment of the sympathetic disorders incident to pregnancy, where a nervine or sedative is demanded, and in a large class of non-puerperal diseases of women. The use of viburnum in this last mentioned class of cases deserves more attention than it has hitherto received, and will occupy the remaining portion of this brief paper.

It could not be otherwise than that a remedy which is known to exercise such a potent effect upon the pregnant uterus, must be of much service in many affections of the non-pregnant woman.

I was long since led to believe fully, from a series of experiments in test cases, that we possess in viburnum a remedy as valuable in gynæcology as it has proven in obstetrics.

The Profession has heard so much of surgical gynæcology during the past decade and a half, through the channels of the press, and of the brilliant exploits of eminent men, and by which men are made eminent, that gynæcological therapeutics have occupied an insignificant field. There seems to be at the present, very happily, a disposition to place a higher estimate upon constitutional measures in the management of diseases peculiar to woman, than has been of late years the fashion among specialists in this department.

The successful gynæcologist of to-day is a physician as well as a surgeon, and while believing in the value of many remedies as old as medicine itself, he hails with pleasure any new therapeutic agent, especially when it has already stood the test of a careful, thorough trial in the hands of those who are at once practical men and scientific physicians.

I am convinced, from an experience in its use extending now

over more than six years, both in private and hospital practice, that viburnum is a valuable acquisition to the gynæcologist's list of remedies.

I would give as a general statement concerning the uses of viburnum, that it is serviceable in all uterine disorders characterized by loss of blood.

In menorrhagia, or metrorrhagia, depending wholly upon systemic causes, as *e. g.* that in phthisis, organic diseases of the heart, hepatic disorders, anæmia, or malarial diseases, it is peculiarly applicable. There is no depressing effect succeeding its administration; on the contrary, it is a grateful tonic, serving to stimulate rather than depress. Patients for whom I have prescribed it without informing them for what purpose, have repeatedly spoken of its pleasant, stimulating effects. In the metrorrhagia incident to the menopause with the multiplicity of nervous derangements from which women suffer at this period, viburnum has proven very beneficial. It will modify the hæmorrhage caused by uterine growths, but it will not answer to claim for it, in this class of cases, what we expect from ergot. In hæmorrhage from such causes where ergot in full doses is not well tolerated, or where the patient is in a feeble condition, I have been in the habit of combining the two remedies in various proportions with gratifying results. I have never known painful uterine contraction to be produced by viburnum alone, nor do I think that oxytocic effects can be attributed to it.

Viburnum is serviceable also in certain forms of dysmenorrhœa. My attention was first directed to its worth in this affection several years ago, by the remark of a patient for whom I had prescribed it for a profuse menstrual discharge. She said that she had taken the medicine during the menstrual periods, beginning two or three days before each, and that there was not only a diminution in the quantity of blood, but that menstruation was more nearly painless than it had been before for years. This remark was suggestive, and I have since given viburnum alone such a thorough trial in the various forms of dysmenorrhœa, that I have arrived at the following conclusions: In all forms of dysmenorrhœa attended with profuse menstruation, viburnum, if administered for several days

in advance of the period, as well as during the continuance of the discharge, affords the patient great relief. Where there is with the dysmenorrhœa a scanty flow, it does not prove beneficial. If the pain is produced by stenosis, or any mechanical obstruction, it affords only moderate relief. It is not sufficiently sedative, if given alone, to fully relieve the sufferings of spasmodic or neuralgic dysmenorrhœa. It is, however, a valuable adjuvant to the sedative and anti-spasmodic remedies, such as cannabis indica, camphor, hyoscyamus, and conium.

In that form of dysmenorrhœa with menorrhagia, caused by fibroid growths impinging upon and twisting the uterine canal, viburnum, in combination with ergot, has proven beneficial, and much more so than either remedy if given without the other.

The period of years during which the writer has made almost daily use of viburnum warrants him in speaking confidently with regard to the results following its use; the method of its physiological and therapeutic action he is content, at present, to permit others to explain.

It is not claimed for it that it possesses merits that will cause it to supersede or supply the place of many surgical procedures in gynæcology, or that its administration is always followed by the desired result.

The fact, however, remains, that it is a valuable acquisition to our list of curative agents, and is deserving of more general use in the treatment of certain affections of women.—*New Preparations.*

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

"Judex damnatur cum nocens absolvitur."

A Series of American Clinical Lectures. Edited by E. C. Seguin, M. D. Volume II. G. P. Putnam's Sons, New York. 1877.

The above is the title-page of a book recently published, which, as its name implies, is a collection of lectures upon various medical subjects delivered at the bedside, or with the pa-

tient present, before a class of medical students. In our student days similar lectures were delivered in hospitals or at the professor's clinic in the medical college. During the time appropriated for this exercise, the patient was examined before the class, the disease described in the lecture, and the treatment explained so far as could be done in the allotted time. Such, we suppose, is the character of the lectures collected in the above series, and which we propose to review. In doing so, we will take each lecture separately and offer our comments upon it, giving the author's name at the head.

Lecture I.—The Principle of the Physiological Antagonism, as applied to the treatment of the Febrile State. By Roberts Bartholow, M. D.

We have this principle clearly exhibited (in this lecture), to which the lecturer applies the term "antipathy" upon one of the aphorisms of Hippocrates "that diseases in general are cured by their contraries." The axiom in physics "that two bodies can not occupy the same place at the same time," is an illustration of this principle. So two actions opposed to each other, no more than two bodies or two contending forces, can occupy the same tissue at the same time. Upon these, as well established principles, the lecturer rests the doctrine of "antipathy or antagonism." He enumerates certain remedies as possessing this antagonistic principle to the febrile condition, to which the term antipyretic is applied, such as the sulphate of quinine, the powdered digitalis or tincture, the tincture of aconite, veratrum viride, and salicylic acid. Each one of these he describes separately in their antipyretic action, and shows the different conditions of the febrile state to which they are applicable. Thus, if the state of pyrexia, fever heat, is prominent in any disease, quinine, by its heat-lowering power in checking the combustion process, is indicated; also digitalis, whose antipyretic property is derived from what is now known that it is a cardiac tonic or regulator of excessive cardiac action as well as sedative; therefore peculiarly applicable to cases attended with a feeble heart.

In high inflammatory fevers, with excessive cardiac action and increased arterial tension, veratrum and aconite are indicated. If the heart's action is feeble and the arterial tension

low, quinine and digitalis are indicated. If the fever is due to putrid ferments, quinine and salicylic acid are called for.

In all these we see the antagonistic principle set forth—the anti-combustion or heat-lowering property of quinine; the heart-regulating property of digitalis; the sedative and antiphlogistic property of aconite and veratrum, and the anti-fermentative property of salicylic acid.

But while all this is strictly true, the fact must not be forgotten that these remedies, possessing other properties than those above mentioned, might be contra-indicated, or circumstances might arise where they would have to be laid aside. Thus quinine, being a nerve stimulant, would have to be dispensed with in fevers attended with delirium and high nervous irritability. Digitalis, from its cumulative tendency, must be in some cases cautiously used. Veratrum and aconite, from the fatal prostration which sometimes attends their exhibition, must be watched with great care. Possessing these additional properties while it does not destroy their "physiological antagonism," yet they might fail from peculiar idiosyncracies in the patient or over-action on their part of the desired effect. For instance, quinine given to lower fever heat, administered to a highly nervous patient, might produce so much excitement as to increase instead of diminish the fever. Veratrum in some cases produces such alarming symptoms of prostration that large doses of brandy and morphine are required to carry a patient safely through. There are persons who can not take quinine in the smallest dose. We do not mention these facts in opposition to the views of the lecturer, but only as caution, and to suggest the possibility of failure on the part of the remedies on the principle of antagonism.

Lecture II.—On Certain Forms of Morbid Nervous Sensibility. By J. S. Jewell, M. D.

This lecture clearly illustrates a very important physiological condition of the nervous system, more frequently met with than formerly and presented for medical treatment. The condition termed "psychical neuralgia," mental pain, increase of emotional sensibility, is one from which many nervous persons suffer; also the condition known as spinal irritation. The line of treatment

marked out by the lecturer is one from which the very best results may be expected. We will give it in full for the benefit of those who may not see the book. Before mentioning the treatment, we would deduce from the remarks of the lecturer on the symptoms this condition of "psychical neuralgia" as "the central and commanding one," to which most of the symptoms may be ascribed. He comments at length upon a case, and intended to bring forward another, but did not have time. So we may regard this as the sum of all the symptoms, or at least those most prominent, which more urgently demand relief from medical treatment. He gives three indications for treatment as follows:

1. Comparative rest.
2. An improved nutrition.
3. Means to allay nervous irritability.

The reasons for rest grow naturally out of the pathological condition, as there is a loss of balance between waste and repair. "It requires, however," says the lecturer, "a close scrutiny in many cases to determine whether their conditions are such as to be benefited by rest." He can not, he says, "give a full exposition of the benefits and dangers of rest" in the class of cases he has been describing, but refers to a lecture on the subject of rest in the treatment of nervous diseases by Dr. S. Weir Mitchell, of Philadelphia.

But he says: "I am safe in saying that the necessity and value of rest in the various forms of neurasthenia is only beginning to be understood by the profession."

On the second indication, improved nutrition, the advice of the physician should be most explicit. The most nutritious diet is demanded; tender beef, milk, cream, eggs, butter, and among vegetables, potatoes should be the chief article of diet. To aid digestion, thereby improving nutrition, he recommends quinia, strychnia, and phosphorus in the form of the acid phosphate of lime.

On the third indication he recommends electricity, moderate doses of one of the bromides, if they do not irritate the stomach, and especially ergotine.

"The efficacy of this remedy," he says, "is seen after rather

a prolonged use in doses of two to five grains, and its usefulness may be increased in some cases by combining with it extract of digitalis in doses of one-sixth to one-fourth grain." He also advises in certain cases, especially in which the pupils are rather large, the physostigma.

Lecture III.—The Treatment of Mild Cases of Melancholia at Home. By E. C. Seguin, M. D.

In this lecture the lecturer cites four very interesting cases, with symptoms and treatment in detail. To say that his remarks upon this distressing mental disorder are interesting and instructive, would scarcely express our admiration of his sentiments, or the pleasure and profit derived from reading them. We think the views set forth can not be too highly commended, especially the advice given in reference to treating the patient at home, or the propriety of sending him to an asylum for the insane. The opposition of friends to sending him away or to keeping him at home may influence some physicians to yield to their wishes in either case, forgetting that so momentous a question is not to be decided by "considerations of sympathy and affection, but by reason and the light of experience." He gives three points to be considered in deciding this question, which should be carefully studied and applied in every case: 1st. Are the hallucinations, delusions, and impulses of the patient vivid and strong? 2d. How obstinate is his refusal of food? 3d. How distinct is the tendency to suicide? "If the delusions are strong, the other two points will most probably be largely developed. The refusal of food will, when positive, render it necessary to feed such a person by the stomach pump, a procedure almost impossible in private practice. If this suicidal tendency is strong, watching such a patient at home would not be sufficient to prevent the accomplishment of the purpose."

These are questions of grave consideration, and a judicious and wise decision on the part of the physician is highly important both for the patient and his friends. On the one hand a hasty decision consigning perhaps a subject of mild melancholia to separation from friends and the comforts of home might result in his permanent injury, and on the other, a decision keeping a really insane person at home might result in injury to the

friends and patient also. That mild cases may be successfully treated at home is clearly proved, and the medical and moral treatment plainly defined. We give some of his prescriptions which were used in connection with generous diet and stimulants, such as ale or porter. As anodyne a pill of opium and cannabis indica was given at night, and phosphorus and strychnia given either in pill or mixture:

℞. Strychniæ, gr. i.
Acid phos. dil., ℥i.
Syr. aurant cort., ℥iii.
M. Sig. A teaspoonful three times a day.

Here is another formula:

℞. Ext. nucis vom., grs. x.
Pulvis rhei.
Ext. cannabis indica, āā grs. xv.
Quinæ sulph., ℥ss.
M. In pil., No. xxx, divid. Sig. One before each meal.

Lecture IV.—Some Forms of Dyspepsia. By Francis Delafield, M. D.

The lecturer, in treating some forms of dyspepsia, uses the "stomach-pump" to relieve the stomach of the irritation of undigested food. A novel remedy; perhaps judicious where no diet at all can be found to suit the stomach. But how is the patient, suffering from dyspepsia, to be nourished if his food is pumped out of him every time he takes it? We find one case mentioned in this lecture where the patient, having learned how to use the pump, "partakes of good dinners and suppers as he pleases, and pumps himself out afterwards." This reminds us of the case of a good old lady fond of good dinners who failed not when the opportunity offered of partaking freely of many dishes prepared to suit her appetite, and afterwards applied to the doctor for a dose of castor oil, thinking if she obtained free purgation afterwards no injury would result from the hearty dinner. Doubtless some portion of the food in all cases of dyspepsia is digested, and if the pump is used to remove the residue, would not all be liable to be pumped out, unless the application of the instrument should be so well timed as to be used exactly when the chyme passes from the stomach into the

duodenum (three hours)? Some dyspeptics vomit or perhaps eructate the more indigestible portion of the food taken. In such there would be no necessity for the pump, unless to facilitate the process. Better for dyspeptics to learn strictly to limit their diet, and take no more than the stomach will bear, thus dispensing with the disagreeable operation of pumping. The lecturer advises some very appropriate medical treatment.

Lecture V.—Diagnosis of those Diseases of the Eye which can be seen without the Ophthalmoscope. By Henry D. Noyes, M. D.

This is an excellent lecture; occupies sixty pages. A full and clear description is given of all these diseases, which is all that is intended by the lecturer. But it seems it can be of little practical utility to country physicians without a corresponding description of treatment appropriate to each disease.

Lecture VI.—The Modern Methods of Examining the Upper Air Passages. By George M. Lefferts, M. D.

The lecturer says: "I shall strongly controvert the idea which is in the minds of many of our profession, that these methods of physical examination, which necessarily involve the use of special instruments and require practice to make perfect, demand such a high degree of skill on the part of the physician, and such an amount of toleration on the part of the patient, that they are of necessity confined to the hands of a few, who, by special training, learned dexterity in manipulation, and by opportunity and special study acquired the right to denominate themselves "specialists." "I believe," he says, "that every general practitioner may and should be likewise a laryngoscopist." We have read his lecture carefully and thoughtfully, and fail to see or understand how any but city practitioners can become skilled in the use of such complicated and costly apparatus as he describes. In the first place, physicians in the country, with very few exceptions, have not the means to purchase these instruments, and in the second place, if they possess them, the opportunity very seldom occurs to practice with them, or see them applied by any one sufficiently skilled to use them. Studying in books without practical demonstration fails to impart skill. Such being the case, all these manipulations upon

the throat, the eye, and the ear, must be confined to specialists, who have the opportunity not only for study, but for practice, thus acquiring dexterity and skill.

Lecture VII.—Tracheotomy and Laryngotomy. By H. B. Sands, M. D.

A distinct list of morbid conditions requiring the performance of these operations is set forth in this lecture. The anatomy of the parts is first described, and then the method of operating, with the difficulties and dangers attending them.

The lecturer alludes to the wide diversity of opinion and practice as to tracheotomy in diphtheria among those of large experience, and says he can not hope to reconcile these discrepancies. He gives his own experience as limited to seven cases, only one of which recovered. He would, however, recommend the performance of the operation in all cases in which laryngeal obstruction is the most prominent symptom, and in which the patient has strength to bear it. "As a palliative measure, it is one of undoubted value, and it occasionally saves a patient's life." We have in a March number of the "American Medical Bi-Weekly" an article on this subject (see No. March 31, 1877). In this we expressed doubts about the propriety of the operation in diphtheria, owing to the extreme asthenia which attends this disease and the tendency to death by the greatly depressing effects of the diphtheritic poison upon the system. We offer the following opinions as conclusive as any that have been published: Dr. S. D. Gross states "that the operation is seldom successful, either in diphtheria or croup, but that it is justifiable, because it affords the patient a more easy mode of death than by asphyxia."

Dr. F. H. Hamilton "believes that tracheotomy in diphtheria *under well-defined conditions* (italics mine) is no longer a question of doubt, but is justifiable."

Dr. Charles West, of London, "regards the operation as scarcely justifiable in croup, and when the larynx becomes involved in diphtheria, the case is utterly hopeless."

Dr. J. Lewis Smith states "only in exceptional cases will it save life, but renders death more easy."

Vogel "believes that the operation should be discouraged in

diphtheria, because the physician has to deal with a general disease, of which the laryngeal symptoms are only the local manifestations."

We could add to the above opinions of others, but time and space forbid. Perhaps these are sufficiently conclusive of the fact that in diphtheria it is of exceedingly doubtful propriety.

Lecture VIII.—The Hypertrophied Prostate. By Robert F. Weir, M. D.

The symptoms of this condition are described as follows: "Frequent micturition; more troublesome at night; urine expelled with less force; pain is felt in the bladder if the urine is not speedily evacuated; pains in the perineum, hips, and feet, and even in some cases in the tips of the fingers." These symptoms are manifested in mild cases, but are greatly increased by exposure to cold or venereal excitement, which give rise to prostatic congestion and the most serious of all the symptoms—retention of urine. This occurring, as it often does in old men, is a very dangerous condition and one very difficult to relieve, requiring a catheter of peculiar shape to enter the bladder. Sometimes there is a constant dribbling of urine, and unless the patient wears a urinal, a penetrating urinous odor, very offensive, reveals the condition of the patient. The lecturer lays great stress upon an involuntary discharge of urine in these cases as indicative of retention, and not incontinence. This is only possible in hypertrophy of the prostate, more suggestive of a central nerve lesion as locomotor ataxia. But retention is the most common condition, and may be attended with overflow and involuntary discharge. He advises that this rule should be fixed upon the mind; viz., that the patient may have an involuntary discharge of urine and yet have retention. A thorough examination alone can establish the diagnosis. The catheter must be used in these cases, and he recommends Nélaton's vulcanized rubber catheter, and afterwards injections of water acidulated with nitric acid, or solution of acet. lead one-sixth to one-third grain to the ounce, or liquid carbolic acid one or two drops to the ounce. As internal treatment, buchu, uva ursi, pareira brava, etc.

Lecture IX.—Points in Surgery. By J. H. Pooley, M. D.

The lecturer first notices the condition so common in boys; viz., phymosis, and brings up some interesting points for consideration:

1st. Incontinence of urine, so annoying to mothers at night on account of "wetting the bed." He alludes to the fact that these cases have been often treated by medicine for long periods without the slightest effect upon the incontinence, the cause being entirely overlooked by practitioners generally.

2d. He alludes to the reflex nervous irritation in these cases as described by Dr. Sayre, which are of a very important nature. His method of operation is by circumcision, which he fully describes. This cures the incontinence and the nervous derangements attending such cases.

He next describes hare-lip, the operation which he performs on the infant at three months of age. He discards the hare-lip pin, and relies upon the interrupted silk suture, introducing a metallic suture in the centre by way of firmer support. He ignores the opinion that the act of sucking interferes with the process of union; thinks the cries of the child more injurious than to allow it to take the breast.

Lecture X.—Spinal Irritation. By W. A. Hammond, M. D.

The pathology of this condition is spinal anæmia derived not from post-mortem investigation, as death never occurs from this disease, but by inference principally from the fact that anæmia in nerve tissue causes pain and irritation from deficient nutritive element in the blood of the part from which the nerve draws its food. Having established this as the correct pathological condition, the lecturer describes two classes of symptoms —centric and excentric:

1st. "Those manifested in the immediate locality of the part; viz., pain on pressure of the spinous processes, and a dull aching, increased on mental or physical exertion.

2d. "Those manifested in remote parts of the body; viz., palpitation and irregular action of the heart, epileptic and choreic movements, gastralgia, intercostal neuralgia, dyspnœa, pain in the heart simulating angina pectoris, and epigastric pulsation."

These are striking phenomena and of frequent occurrence in anæmic, chlorotic women, and in many cases badly treated by

misdirected remedies. In cases manifesting these symptoms the whole spinal column should be carefully examined by palpation to find a tender spot, and when that is discovered the diagnosis is clear. The treatment recommended by the lecturer is appropriate, which we give as follows: Having found the tender spot in the spinal region, a blister should be immediately applied; or, in urgent cases, the actual cautery. As internal remedies, iron, quinine, mineral acids, cod-liver oil. Here is his formula:

℞. Strychniæ, gr. i.
Quinæ sulph., ferri pyrophos., āā ʒi.
Acid phos., dil., syr. zingib., āā ʒii.

M. ft. sol. Dose one teaspoonful in one-third glass of water after each meal. One grain of opium in pill taken night and morning.

Lecture XI.—Treatment of Eczema. By R. W. Taylor, M. D.

As this lecture is devoted almost exclusively to the treatment of this disease, we can not do better than to give his line of treatment in full, copying most of the formulæ: 1st. He objects to ointments and fatty substances generally; also all preparations containing tar. Advises a warm bath at a temperature of 105° F., rendered mucilaginous by dipping and squeezing in the bath a bag containing one quart of bran. To this bath add one-half pound borax or sal. soda; in it the patient should remain fifteen or twenty minutes, the temperature kept up by adding hot water as often as necessary. After which the patient should be carefully dried with a soft towel, avoiding friction, and the sores covered with soft pieces of linen dipped in warm water and glycerine. As anti-pruritics the following:

℞, Starch, finely powdered, 1 oz.
Oxide zinc, ½ oz.
Pulv. camphor, 1½ drachm (very finely powdered and carefully sifted).

To be dusted over the eruption.

℞. Hydrate chloral, ʒii.

Rubbed in a mortar with a few drops of glycerine until it dissolves; then mix as much powdered camphor as can be in-

corporated until a liquid is formed rather more dense than glycerine. To be applied with a brush or feather.

℞. Liq. plumbi.,
Sub. acet., ℥ii.
Tinc. opii, ℥ii.
Tinc. camphoræ, ℥i.
Glycerine, ℥ii.

Mix with a quart of water and apply on lint.

For children, the following:

℞. Zinci. oxid., ℥ss.
Hydrarg. ammoniati, grs. vi.
Pulv. camphoræ, ℥i.
Ung. simplicis, ℥i. Or,

℞. Bismuth sub. nitrat., ℥i.
Hyd. oxid., rub. pulv., grs. vi to x.
Hyd. vel., sub. mur., grs. x.
Pulv. camphoræ, ℥ss to ℥i.
Ung. simpl., ℥i. M.

For internal treatment in children, he prescribes as follows:

℞. Hyd. sub. mur., grs. xii.
Pulv. rhei., grs. xviii.
Magnesiæ calc., ℥ss.

M. ft. chart No. vi. Sig. One every night.

During the day the following:

℞. Bismuth sub. nitrat., sodæ bicarb., āā grs. xxx.
Sacch. alb., ℥i.

M. ft. chart No. x. Sig. One in a teaspoonful of water three three times a day.

After this, to improve the general nutrition, he prescribes as follows:

℞. Ferri. ammonio cit., grs. xlviii.
Syr. aurant, cort., aquæ, āā ℥i.

M. Sig. One teaspoonful three times daily in a little water.

If quinine is necessary, the following may be substituted:

℞. Ferri. et quiniæ cit., grs. xlviii.
Syr. aurant., cort., aquæ, āā ℥i.

M. Sig. One teaspoonful three times daily in a little water.

We have thus transcribed nearly the whole of his treatment, because we think it very appropriate and should be more widely disseminated than it will be by the book, as many more will read the review than will see the lecture. Time and space forbid our noticing the balance of the treatment. What we have copied is the more important.

Lecture XII.—Peripheral Paralysis. By F. T. Miles, M. D.

We can only say a few words on this lecture. This form of paralysis is well described in symptoms and causes, and only two points in treatment mentioned. Friction with stimulating liniments and electricity. F. E. W.

The Tonic Treatment of Syphilis. By E. L. Keyes, M. D. New York: D. Appleton & Co. 1877.

Dr. Keyes in this work becomes the strong advocate of mercury in the tonic treatment of syphilitic disease. Starting from the facts discovered by the French microscopist, Wilbouchewitch, in regard to mercury increasing the red corpuscles of the blood, he proceeds to build up an elaborate theory in regard to the highly beneficial effects of mercury in syphilis. Notwithstanding his zeal and enthusiasm, however, he only gives additional proof of a fact now well known; viz., that mercury may be a tonic, and will be of use in whatever disease the tonic treatment seems to be indicated. The whole work is carefully and accurately written.

MISCELLANEOUS.

"Non omnes eadem mirantur ament que."

Dr. Sayre at Birmingham.—The visit of Dr. Sayre to Birmingham to give a demonstration at the Queen's Hospital of his method of treating curvature of the spine was the occasion of a very large assemblage of practitioners and students in the operating theatre of that Institution. The medical staffs of the General, Queen's, Orthopædic, and Children's Hospitals were represented, and many of the surgeons had brought cases

suitable for Dr. Sayre to demonstrate from. He selected two cases of lateral curvature and one of angular curvature for the application of the plaster of Paris bandage, and in all the cases the operation appeared to be well borne by the patients, and to afford them comfort rather than inconvenience. Each patient was accurately measured by independent parties prior to the use of the plaster apparatus and afterwards, and each seemed to have gained in height, from half an inch to an inch and a half being added to their stature. Dr. Sayre's lecture, which occupied nearly two hours, was listened to with marked attention, his quaint, humorous manner of expression often eliciting loud applause, and his earnestness in enunciating the principles on which his treatment is founded convincing his audience of his thorough confidence in the efficacy of his system of treatment. At the conclusion of the demonstration a cordial vote of thanks was moved by Mr. West, seconded by Mr. Furneaux Jordan, and unanimously accorded to Dr. Sayre for his praiseworthy efforts to make his treatment generally known, and for his courtesy in paying a special visit to the midland district.—*Lancet.*

Fucus Vesiculosus.—This remedy has been brought forward as one capable of reducing obesity. It seems to have been successful in some cases. In our own hands it has, on a short trial, reduced the "superabundance of flesh" at the rate of eight pounds per pound-bottle of the fluid extract taken. The same patient, a young man of some twenty-five years of age, is now on the second bottle. In our January and April numbers it is spoken of more at length.

A. F. Patter, M. D., in the "Druggists' Circular," says: This great bank of gulf-weed which extends at the westward of the Azores, from the 20° to the 36° of north latitude, still occupies the same position it did in the time of the earliest navigators; and between this and European shores are various detached tracts in ridges from ten to twenty yards wide and of indefinite length.

In this situation it continues to grow luxuriantly, and appears to multiply itself by offsets, at first accidentally broken off, and immediately establishing themselves as independent plants.

The gulf-weed that is now sold is the fucus vesiculosus and

nodosus. The common names are twin-bladder, fucus, bladder-weed, bladder-wrack, rock-weed, shore-weed, sea-weed.

Habitat.—Along the sea shore, on rocks and stones left exposed at low water. Also on artificial piers and quays, in estuaries extending up rivers. As long as the water remains sensibly brackish, it can be found both summer and winter in great abundance. It requires no particular care in gathering, as all species of the fucus have similar properties.

I have used it since 1860, and can say that I have seen several cases of morbid obesity cured by drinking freely of a tea made from this plant. I consider a decoction of the weed the most eligible form in which it can be given.

The plant is equally as beneficial for lean people to use to make them fat and plump. It changes the unknown morbid condition that exists in either case to a healthy state. I have used it in the following diseases with apparently good results: Chronic cystitis, irritable bladder, debility, chronic diarrhœa, dyspepsia, enlarged glands, mal-nutrition, etc.

It is also largely used in the manufacture of kelp and iodine. It furnishes a good food for cattle when green, and supplies an abundant and excellent manure.—*New Preparations.*

South American Meat.—At the Cannon Street Hotel there have been exhibits of fresh meat which, it is stated, were preserved in Montevideo ten months ago. The importers are the preservers, a firm at Montevideo, who declare that the meat can be sold at from 3d. to 4d. per pound retail, without bone, and hopefully look forward to a large trade being done in this meat—as hopefully as have the promoters of many other like inventions. The meat is turned out of zinc cases, and it is not particularly unsightly, though it differs considerably in appearance from the joints seen at the cheap butchers. The meat shown was beef, and it had very little fat—indeed, it might be pronounced to be all lean. The mode of preserving it was stated to be a secret. It is fairly stated by the importers that the beef is not expected to be equal to the beef of the stall-fed ox of England, but it is urged that it will supply good steaks for the frying-pan, and thus cut and cooked it differs very little from steaks generally in look.—*Brit. Med. Jour.*

MEDICAL NEWS.

'Nulla dies sine linea."

In several newspapers in Kentucky, Dr. Joseph Bryan, of Lexington, Ky., claims, or has claimed for him by others, the credit of using first the plaster of Paris jacket in the treatment of Pott's disease. The fallacy, the utter untenability of this claim has been exposed in the "American Medical Bi-Weekly." It has been demonstrated in that Journal that there are but two principles involved in such treatment; that of spinal extension by suspension, which treatment was used about, if not before, the period of Dr. Bryan's personal birth; and that of fixation of the spine (thus extended) by the use of the plaster of Paris application, which procedure was adopted before Dr. Bryan's professional birth. As to the imputation made by him in one of the journals of this State, that there is a desire on the part of the editor of the Bi-Weekly to strike him either a personal or professional blow, it is only necessary to say that this is absurd. If a statement of the truth is injurious, this is only to be regretted, but not, in justice to the Profession, to be avoided. As to the complaint of Dr. Bryan of the editor having "the grim satisfaction of having lopped off one young doctor's head," it is proper to say that if one young doctor's head has been "lopped off," it is a case of suicide and not of homicide. It is a part of the province and intention of the editor of a medical journal to improve young doctors' heads, and not to injure them.——At Yale College the fees paid seem to be devoted to the instruction of the pupils in boating; no additional charge is made for literary instruction. This system has been tried at Oxford and Cambridge, England, and has been found to give much satisfaction.——The "New Orleans Medical Journal" is now published as a monthly; eighty pages in each number, and at $5 per annum.——For nearly half a century the following distinguished physicians and teachers have delivered full courses of lectures in medical colleges: Paul F. Eve, Joseph A. Eve, Louis A. Dugas, Lewis D. Ford; they are still in harness and doing the best kind of work.——Professor J. H. Pooley, of Starling Medical College, has been invited to

complete the course of lectures at Dartmouth commenced by the late Professor A. B. Crosby; a graceful compliment justly bestowed.——The addresses delivered at the last meeting of the British Medical Association were unusually excellent; the address of Spencer Wells appears in this issue; that of Roberts will appear in the October Journal. Sir William Jenner said of the address of Roberts, that it was one of the most able and interesting addresses to which he had ever listened.——Tanret, of Troyes, has just read a paper before the Académie of Médicine showing that the alkaloids ergotin and ecbolin of ergot are identical. This is contrary to the teachings in trans-Atlantic and American medical colleges, and is worthy of attention.——Many of the towns and villages of South Africa are becoming noted places of resort for consumptives. Pretoria, Potchefstroom, Bloomfontein, Wynberg are now successful rivals of Nice, the Reviera, and Mentone. A climate must be absolutely perfect to induce the European consumptive to desert the latitudes, associations, and charms of the Mediterranean country for the wilds and barbarisms of South Africa; but what will not man give in exchange for his life? None of these places, however, are superior to the climates of Asheville, N. C., Aiken, S. C., and the terebinthinate atmospheres of interior Florida.——Coffee has been found to be the best antidote for strychnia; animals taking five centigrammes (more than one-half of a grain) of strychnia experience no serious results if taken in a strong infusion of coffee.——The class at the Louisville Medical College was, at the close of the last week, as large as ever at this season. This fact is a source of great pleasure to the many devoted friends of this Institution. To many worthy gentlemen it is as distressing as an attack of lead colic. "The hatchet, however, is buried," and the medical ambition now paramount here is to make Louisville a greater medical centre than ever before; as she will be; for, enjoying conspicuously climate, clinics, centrality, composite and cosmopolitan society, and corps of tried and experienced teachers, she must be.——Conneda, the tried physician and true friend of Napoleon III, died August 16th at Corsica.——It is rumored that Dr. Matthews Duncan, of Edinburgh, is to have the chair vacated by the resignation

of Dr. Greenhalgh.——The French are now using the thermo-cautery almost exclusively in performing tracheotomy. This method has been taught and advised in several American medical colleges for years.———Another death from ether at the Moorfields Ophthalmic Hospital, England.——"Her Majesty, our most gracious Queen Victoria, has been pleased to direct that the graduates in medicine at the University of the Cape of Good Hope, Africa, shall be recognized throughout the United Kingdom." What next? Are they to come from the Feejee Islands?———Several thousand people, white, black, brown, octoroon, etc., etc., shook hands with the President during his visit to Louisville. Is he to have onychia, paronychia, eczema, scabies, or all of them, or can he possibly escape them all? The dermatologist can never become a hand-shaking politician, unless blessed with the blended courage of the Mussulman and the Muscovite. Can not some of our distinguished dermatologists contribute a paper on "hand-shaking," and put thus an absolute end to this foolish custom? "The Great Father" bore it all well, and himself still better. He visited, by invitation, the literary colleges, but strange to say not one of the medical colleges here matriculated him; a most remarkable exception to their usual and uniform kindness in this particular. ——On page 166 (August No.) of the republication of Dr. S. C. Busey's paper the printer committed a blunder. The cut at the bottom of the page appears to be the illustration of Case XI, whereas it is the cut accompanying the case of Dr. Paschal, which is described in the foot-note beginning on page 165 and concluded on page 166.

EDITORIAL.

"Nullius addictus jurare in verba magistri."—Hor.

The Doctrines of Malthus.—It is very well known that there are thousands who fear a dangerous increase in the numerical strength of the human family, unless some means be adopted for the checking of population. Such persons regard with

great apprehension the introduction of all of those improved devices of the scientific hygienist who has before him the ambition of not only removing the causes of death, but of so improving domiciliary surroundings, as to increase the average health of every family, and so to increase its personal as well as its pecuniary productiveness.

When it is known that in the last half century five years have been added to the average longevity of the human race (resident in civilized countries) there is every reason for believing that modern hygiene is yearly and progressively accomplishing all that was hoped from it; viz., apart from adding to the value of property by increasing the safety of life, it is increasing the personal productiveness of the human family by adding to the average duration of life, and rapidly removing the multiform causes of disease and death. It is evident therefore that the disciples of Malthus must view with no friendly eye the constant advances made in public and domiciliary hygiene.

If there be anything to fear from rapid increase of population, as such disciples claim, they are, if consistent, the logical and natural enemies of the entire science of hygiene.

Where the representatives of the doctrines of Malthus hold sway, it is wonderful to see what is the aggregate effect of the adoption of even some of the devices advocated by them. Thus in France it has been demonstrated, from the rate of increase of the population in the last decade, that it would require three hundred and sixty years for the doubling of its population, while in England and Wales, estimates on the same basis show that the population is so rapidly, healthfully and prosperously increasing, that in fifty-three years it will be fully doubled.

These to the physician are certainly most interesting facts, for they not only demonstrate that under improved hygiene population is rapidly multiplied, and therefore also national wealth and prosperity increased (for every population is able to care for its poor and accumulate besides enormous aggregate wealth), but they prove also that where such populations increase, and increase rapidly, there may be no danger to any community from the mendicancy of surplus population; that increased health keeps down disease, diminishes poor-house, hospital and asylum

rates, while it renders each community stronger, more independent of aid, and therefore more productive.

Again, these facts show the frightful difference in the rate of increase in two such representative nations as those of England and France. Equally enlightened as to the means of preventing disease and of treating it; equally skilled in the origination and development of commercial and mercantile resources, and in the various elements representing a scientific political economy, it is demonstrated that the forces incident to the numerical productiveness of the two countries being the same, one in which the disciples of Malthus have no material influence doubles its population in fifty-three years, while the other, where the devices of Malthus and his followers conspicuously exist, can not double its population in less than seven times the length of the period mentioned.

It may be said that these startling differences are not so much due to vicious devices practiced in France and to their repudiation in England, as they are to the fact that in France the custom of the country is for the eldest son only to marry, whereas in England there is no such restriction. This seems, at first, to be a strong objection, but examination proves it to be specious rather than real; for it is well known that in France the chief difference in the sexual intercourse of the sons of a family with the opposite sex is, that whereas the intercourse of the elder sons is under the sanction of law (marriage), that of the younger sons is under the sanction of custom (recognized concubinage). And inasmuch as this customary concubinage is not of an indiscriminate character, but differs, as a rule, from marriage only in the absence of a legal bond, the difference between the English and the French relation of the sexes is, that while concubinage in England is condemned, and even publicly repudiated, in France it is privately, as well as publicly, recognized.

The reason, then, of the rapid increase of population in England and the slow increase of population in France can not be said to be due to the general prevalence of marriage in the former country, and of its exceptional or lesser prevalence in the latter, but to the fact that in England the sexual devices for checking population are publicly repudiated, while in France

they are generally tolerated and practiced. Indeed, among the French peasantry (and the peasantry of every country constitutes its most prolific element) the devices for checking propagation are almost universal, while in England they are generally repudiated. The one country is largely under the dominion of Malthusian influences, while the other country refuses to tolerate them.

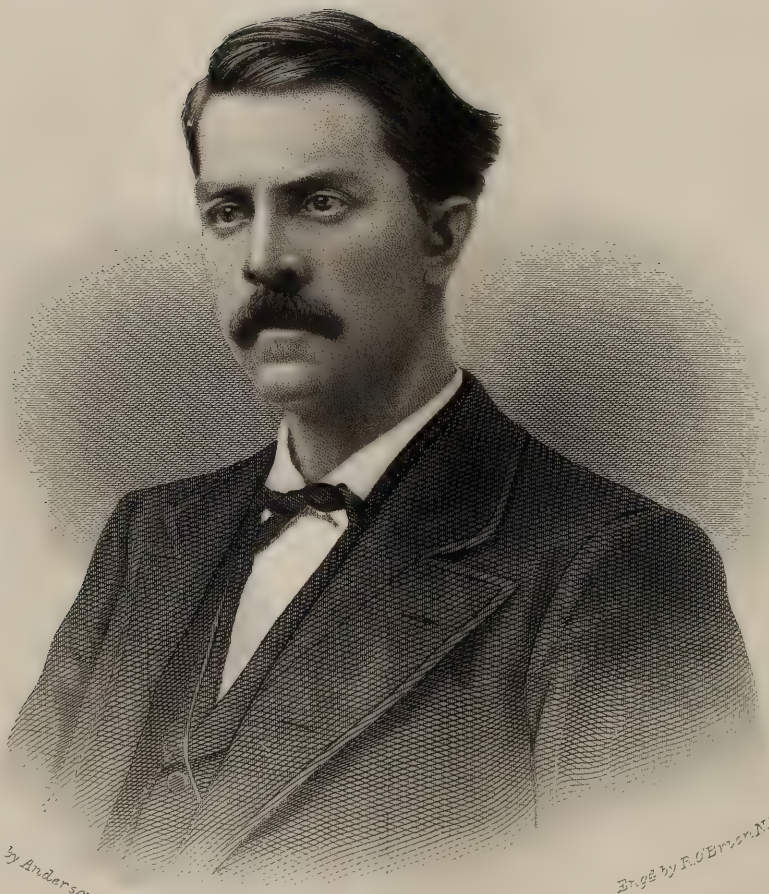
These facts being too well established to need more than a recital of them, it is evident if in England (as according to the doctrines of Malthus) the population increased in geometric ratio, while food increased only in arithmetical ratio, the dangers and the ruin apprehended by Malthus have been prevented not by any failure of his laws in regard to the ratio of increase in food and population, but by the triumphs of the grand science of hygiene; a science which, in the face of the ratios taught by Malthus, and largely admitted to be true, is strong enough to override these ratios; making increased health, and therefore increased productiveness more than sufficient to compensate for the differences in the ratio of increase in man and the increase of food necessary for his physical and political prosperity.

The doctrines of Malthus, therefore, in regard to the dangers of surplusage of population with a coïncident deficiency of food, while admitted to be rational by many of the most able men, have failed to be realized; not from any defect in his able reasoning, but because the science of modern hygiene has largely diminished disease and consequent pauperism, while it has coïncidently increased health and consequent productiveness.

It may well be said, therefore, that inasmuch as workers constitute the very basis of national wealth, and as these workers, under an enlightened hygiene, can be and are numerically increased to the benefit, and not to the injury, of any enlightened community, that the bulwarks behind which Malthusian heretics have so long and so successfully fought are triumphantly carried by the revealed forces of modern hygiene. That, as justly detestable as such doctrines are from the standpoint of individual and family morality, they should be not less detestable to the true friends of civic morality and national prosperity.

A New Method of Treating Cases of Detached Retina.—Dr. Hermann Cohn has contributed to a German Journal a paper which is attracting much attention. The foreign Journals discuss it with much care and commendation. Where the retina becomes separated (as it does, it is said, in one per cent. of cases) ophthalmic surgeons have, as a rule, failed to remedy the lesion, or to lessen its effects. Graefe, Sichel, Arlt, and others have tried various devices, but with little success. Cohnheim did better by the use of pressure, but it has been reserved for Wecker to treat these cases successfully by passing fine gold wire under the detached retina and through the sclerotic, and thus establishing free drainage. The results are excellent. Cohn's paper reviews all of these processes and describes that of Wecker.

Progressive Surgery.—When the process of nerve-stretching was first advocated as a means of not only relieving but of curing neuralgia, those who advised such treatment were generally condemned and severely ridiculed; and yet it seems that this surgical procedure for the relief of neuralgia is about to take its place among the most successful devices of the surgeon. Paul Vogt has dissected out a portion of the ulnar nerve for intractable neuralgia with complete success. For the relief of an intractable tetanus, from a contused wound of the palm of the hand, he cut down upon the brachial plexus, and opening the sheath of each nerve of the plexus, he carefully stretched every nerve; the tetanus subsided promptly, and there was a complete cure effected. He states that Valentin has demonstrated the curious fact that stretching does not produce any histological changes in the nerve so treated. Petersen, according to the "Lancet," has stretched the posterior tibial nerve with the very best results, while Nussbaum and Billroth have even adopted nerve-stretching as a means for relieving reflex epilepsy. Callender, in England, has reported several cases of nerve stretching for relieving neuralgia, while some one on the Pacific Coast asserts that he has absolutely lifted the limb by the sciatic nerve in treating neuralgia, and with entire success. There is some fiction but much fact in all of these reports, and the procedure described certainly deserves the most serious consideration.



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Hunter McGuire M. D.

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ORIGINAL COMMUNICATIONS.

"Qui docet discit."

ARTICLE I.—*What Anæsthetic shall we use?* By JULIAN J. CHISOLM, Professor of Eye and Ear Diseases, University of Maryland. [Read before the Baltimore Academy of Medicine June 5, 1877.]

Surgeons in all parts of the world have been much exercised of late over this most important subject, and a question of greater interest to suffering humanity it would be difficult to frame. For the past thirty years anæsthetics have been in use, and millions who have been operated upon under their benign influences attest the inestimable value of this greatest of modern discoveries. Ether, although the first introduced, had made but little headway, when Simpson, in 1847, gave chloroform to the world. It met with immediate acceptance from professional men; and within a very few months there was scarcely a surgeon of note in either hemisphere who had not used it, and extolled it in the strongest expressions of his mother tongue.

From its universal adoption the inhalation of chloroform became the precursor of every serious operation; and those who enjoyed with it quiet sleep under what without it would have been intense suffering, were soon numbered by hundreds of thousands. Ever recurring wars, with hecatombs of wounded, gave surgeons an opportunity of using chloroform on a very large scale, which only added to the well-deserved reputation which it seemed to have enjoyed from its very introduction.

There was but one single alloy in this general jubilee. Now and then some patient would die when chloroform had been inhaled. In former times such fatal accidents on the operating table were common enough to every surgeon of large experience; but now, since the introduction of chloroform, there was an uncomfortable suspicion that in some way the inhalation was to be blamed for these fatalities; for under its life-saving influences nobody ought to die. With this impression once excited, each accident as reported and copied from journal to journal and from newspaper to newspaper frightened the public, and slowly undermined that confidence which surgery had previously had in this anæsthetic. A strong desire was expressed to discover some kindred agent which would establish anæsthesia without danger.

For many years the ether anæsthetic had been abandoned, and was nearly forgotten, chloroform having superseded it and driven it out of use. It was now remembered that so far very few deaths had been attributed to ether, and hence this older anæsthetic began with some to take the place that chloroform had so completely occupied. At this present time ether is nearly as much used as chloroform, its votaries being irregularly distributed. With many chloroform holds its original undisputed sway; while with others sulphuric ether is extensively used. Now that ether is being more extensively employed, deaths under its administration are being more frequently reported, and hence the question which is forcing itself on the profession for solution; viz., which of these two anæsthetics is the safer, and by what safeguards can their administration be surrounded?

The many substances for anæsthetic purposes which have been brought to the notice of surgeons in the last few years have had but a very ephemeral existence, and with the exception of nitrous oxide gas, which dentists find so useful for their momentary operations in teeth extracting, all have passed from use. Chloroform and ether remain as giants combating for superiority.

That death occasionally occurs during the administration of both ether and chloroform there can be no question; and that

deaths have occurred from the inhalation of either of these potent agents, even when most carefully administered, must be equally admitted. That deaths are numerous when either of these fluids are carefully administered, no one well informed believes. That deaths are often wrongfully attributed to both of these anæsthetics every one must acknowledge; for it is found very convenient to put the shortcomings of surgeons upon these agents, so that in common with the mal-administration of anæsthetics, extreme protraction of operations, so exhausting to patients, clumsiness in the manipulation with consequent excessive loss of blood, temerity in undertaking operations in which from their magnitude no reasonable success should have been expected, are disowned in the face of the inhalation, to which death is often conveniently attributed even when the patient dies many hours after the operation from causes which would have been properly named prior to the discovery of anæsthetics.

I have seen anæsthetics administered carefully and carelessly, boldly, cautiously and timidly, by those well instructed in their use, and by others totally ignorant of their action. I have seen instances in which the most serious accidents might have happened had not steps been taken to prevent them; and I propose in brief to analyze those cases which have come under my own observation.

For successful inhalation, much will depend upon the mode of offering the anæsthetic to the patient. The method adopted for administering anæsthetics is simple, and is the one in general use. Should I have control of the patient for twenty-four hours before I operate, I always insist upon a fast for at least six hours prior to the inhalation. This rule, however, I am compelled to break daily. I use anæsthetics extensively to aid in diagnosis in the ophthalmic diseases of irritable and fretful children, as well as in operations at the Eye Clinic, which being held at 1 o'clock in the day, immediately after the midday meal of the working classes, often compels me to administer the anæsthetic a very short time after a full meal has been taken. Beyond the vomiting, which is very annoying to the operator and delays the speedy completion of the surgical procedure, I have seen

no bad result from it. The precaution of loosening the clothing, especially of the throat and chest, so as to facilitate respiration, I never omit. *With adults a drink of whisky prefaces the inhalation always.* Children bear anæsthetics so uniformly well that no such precaution is needed with them. A towel many times folded and formed into a hollow cone *with open top* if chloroform is used, and *closed top* if ether is to be administered, makes the very best inhaler that I am acquainted with, and should be the one in universal use. A thick towel can always be obtained, can always be had clean, and permits the more or less ready passage of air (as folded for the special anæsthetic to be used), without which neither chloroform nor ether can be administered with success. In my operating case I carry several long, stout pins, known as shawl pins, for the purpose of pinning together the ends of the folded towel in cone form. These simple instruments I find equally valuable with any in the operating case.

In using ether the cone soaked with the fluid is placed directly over the nose and mouth of the patient and held firmly upon the face, notwithstanding the struggle and cries for breath until the patient becomes prostrate and insensible. With chloroform such a procedure would properly be called mal-administration. Chloroform must be *slowly* inhaled without causing any suffocative feelings. Into the cone, *with both base and apex open*, is poured a small quantity of chloroform; the towel is then held at some distance from the nose and slowly approached as the effects of the drug are experienced, until the base of the cone reaches the face about the time when the patient is half anæsthetized; the upper end of the cone being carefully kept open for the free admission of air. By commencing the inhalation with a very dilute chloroform vapor no discomfort is experienced by the patient, and sleep soon begins to make its approach.

Another instrument which should belong to the operating case of every surgeon is a broad fenestrated or ring forceps, by which the tongue can be seized without injury and forcibly drawn out without fear of slipping away or tearing into its substance. I consider this instrument an essential to the surgeon who uses

anæsthetics. There is a condition often met with during the early stages of inhalation in which the irritated pharyngeal muscles draw the tongue backwards, so as to seriously impede respiration. The free use of the tongue forceps is all important at this period.

During the inhalation I watch the face more than I do the pulse, although the face, the chest movements, and the pulse are all kept under constant observation. The color and expression of the face will always be a sure index of the working of the heart and lungs. As soon as sleep begins to show itself, I take away the pillow from the head of the patient, so as to insure a horizontal decubitus, which would often be seriously objected to by the patient during the sensible condition. Should vomiting show itself, the patient is immediately turned over on the side until emesis is accomplished. The anæsthetic is then resumed, although retching may still continue. I find the continued inhalation the best method for checking the involuntary contraction of the abdominal muscles.

I continue to administer the anæsthetic until I find reflex action suspended, as expressed by absence of contraction in the lids when the eyeball is touched. Now I consider the patient ready for operation, and in a safe condition to have it successfully performed. The patient lies in deep sleep undisturbed by any peripheral irritation. The heart and lungs, through their own nerve centres, continue to work harmoniously, uninterfered with by reflex agencies, transmitted as they would otherwise be from the peripheral nerves through the cerebro-spinal axis to these special nerve centres. While the patient escapes all pain and the surgeon avoids all inconvenience, the patient sleeps undisturbed by the surgeon's knife, all the faculties essential to life being in full operation. *This is the condition which I recognize as full and safe anæsthesia.* Less than this would permit dangerous and even fatal reflex complications; more than this would be extreme narcotism, which by suspending the influence of the nerve centres would stop the working of the organs—the heart and lungs—which these centres, when in good order, excite. Fortunately it would require much more of the anæsthetic to bring about this suspension of the vital function; a

degree of narcotism which should justly be called an overdose. Between *this excessive narcotism and the safe and thorough anæsthesia there is a broad gulf, which only the very rash and ignorant are likely to bridge.* When the patient is properly anæsthetized, the inhalation is stopped, to be renewed from time to time if the operation be tedious and signs of returning consciousness make themselves apparent.

Anæsthetics are among the most powerful drugs of the Pharmacopœia, and must always be administered with caution. To bring a living being to that borderland in which life in many respects so simulates death, should at no time be a fool's occupation. It is a condition which the strongest-hearted can not face without some uneasiness, and many accept with great alarm. The administration of anæsthetics should therefore be only entrusted to skilled hands, who, knowing what they have to do, will give all of their attention to the serious matter which should absorb them. Hence it is better to have as an administrator of anæsthetics a physician who takes no interest in surgical operations, and who will not have his attention for even a moment diverted from the face and pulse of his patient.

From my own experience and observation, I can readily see how there can be *seven causes for death* during the administration of anæsthetics, even when the patient is in the recumbent posture, with loose clothing and in a proper condition for its administration. Etherization in the sitting posture is dangerous, and should never be undertaken. May not the perfect safety with which chloroform is used in obstetrical practice depend much upon the empty condition of the stomach, the loose clothing, *and the horizontal decubitus,* which are considered the best preparation for safe inhalation, accompanied, as it always is in labor cases, with no fear of but a longing for the anæsthetic.

In the first place, I can understand how a cloth saturated with chloroform, and covering up the face of a patient so as to exclude air, may necessitate the inhalation of so saturated an atmosphere as to cause excessive irritation of the air-passages. This may act injuriously upon the respiration and circulation. Should a fatal result occur under this condition of faulty admin-

istration, we would not call this a death from chloroform under careful use, but its careless abuse; a result that could not occur if common precautions are taken, such precautions as every physician is expected to use who administers any of the efficient drugs of the materia medica. Should a physician intending to administer hypodermically a few minims of Magendie's Solution from a full syringe carelessly inject the entire contents under the skin, no one would attribute the blame to the morphia, but to the hand that worked the syringe. In this case life is sacrificed to the carelessness in the use of a remedy known to be potent, and therefore to be used with caution.

A *second* cause of death may readily occur with the early administration of both ether and chloroform. In many cases the local action of the inhaled vapor so irritates the throat as to cause contraction in the tongue muscles and a closure of the laryngeal opening by the close approach to the arytenoid cartilages and the overlapping of the epiglottis. This condition is evinced by stertorous breathing, change of countenance, discoloration of face, impeded thoracic movements, and vain attempts at thoracic expansion. The patient is threatened with asphyxia by an involuntary but successful effort at swallowing his tongue. Should he be allowed to remain in this condition, death will as surely take place as when one is seized by the throat and fatally strangled. If the mouth be opened, tongue caught by the tongue-forceps and drawn forcibly outwards, especially to one side, a loud, sonorous inspiration is immediately heard, air pours into the lungs, and the ominous cloud upon the face at once passes away. Should there be no forceps at hand, and the drawing out of the tongue be omitted, we would have another glaring instance of death from the maladministration of the anæsthetic under these conditions. A surgeon would have as good reasons for escaping censure as he who, after an amputation, found that he had forgotten the instrument necessary for securing the arteries, and hence allowed the patient to die from hæmorrhage.

A third cause of danger in the inhalation of anæsthetics resides in the inexperience of the administrator or in his inattention. I have already said that the physician who administers

an anæsthetic has full occupation in the part assigned to him, and should not permit his attention to be diverted to the surgical work performed by another, and for which he is preparing the patient. I have seen instances in which the administrator of the anæsthetic, in his eagerness to follow the several steps of the operation, had become so oblivious to his duty as to allow the thickly folded cloth to compress firmly both nose and mouth of the patient, who, with asphyxia imminent, was too insensible and powerless to push away the obstacle and escape the threatened suffocation. Many a time in doing general surgical work have I pulled the cloth from the face to the immediate relief of the respiration. In ophthalmic surgery, to which my work is now exclusively confined, this accident can not occur, as the face is constantly under observation. Had the patient a pillow pressed over the face he could not be more surely suffocated. Another clear case of careless administration.

Still a *fourth* cause of death will be wrongfully attributed to the anæsthetic should it occur during the act of vomiting. If the patient be allowed to remain upon his back during emesis, some of the contents of the stomach will pass downwards from the pharynx into the trachea and cause death by suffocation. Autopsies are not often permitted after supposed death by anæsthetics, but in one recently reported, in which a patient suddenly expired immediately after the act of vomiting, the larynx and trachea were found packed with food ejected from the stomach. Again a case of death at the hands of the careless administrator in his bad manipulation of the patient, and certainly not from the anæsthetic.

The fifth cause of death from both chloroform and ether, probably the most common of all, has been more active of late years, being rendered so by the unsettling of the former confidence which surgeons have in the safety of anæsthetics. In their timidity surgeons do not now push the inhalation to the degree of suspending the functions of such parts of the cerebro-spinal system as preside over the emotional, sensational, motor and reflex acts; *the only condition recognized as one of perfect safety in chloroform and ether anæsthesia.* I refer to that condition in which peripheral irritation can no longer be trans-

mitted through the cord to the brain, and then back by the vagus and pneumogastric nerves to the cardiac ganglia. Any condition short of this stage of temporary suspension of reflex agencies leaves the heart exposed to those serious inroads from peripheral irritation through which its movements may be suddenly and permanently arrested. Such fatal results are identical with instances of nervous shock, so familiar to operators in former times, and deemed a sufficient explanation of death under the circumstances. In this way can be satisfactorily classified the many deaths under anæsthetics for trivial operations, as tooth-drawing, opening of abscesses, etc., when only enough of the agent was inhaled in the sitting posture to partially stupefy, but not to protect against reflex accidents from emotional or peripheral excitement.

In this class are also to be placed those many fatal cases during the more serious operations, in which the timidity or anxiety of the surgeon, with unsettled confidence in the article he is using, induces him to *arrest the inhalation before the period of safety has been reached.* He commences the operation with the vital forces all exposed to injurious reflex peripheral irritation, and under the cloak of the anæsthetic, without its protection, invites disaster. When deaths occur under these circumstances the fatal result is not to be attributed to the anæsthetic, but, on the contrary, *to the want of it;* clearly a defective administration induced by unwarrantable and unworthy fright on the part of the operator.

Under this heading I would also class the deaths said to be occasioned by heart disease under the inhalation of chloroform. Diseased conditions of the heart, regardless of kind, may make this important organ peculiarly susceptible to syncopetic influences when reflex action has full sway; hence we find violent emotional excitement a fruitful cause for mortality in the subject of heart disease. Many such persons having to undergo painful surgical operations in former times, before the introduction of chloroform, suddenly collapsed with the first incision; and they *still die as of old when they are not properly protected by complete anæsthesia.* Should chloroform be freely given to patients with heart disease, regardless of kind, who must submit to painful operations by its liberal use, they are put in a

condition of safety against all emotional and reflex annoyances, without which they could not escape trouble. I *look upon chloroform as the strong bridge which will conduct patients suffering from serious heart disease safely through serious operations.* As a surgeon in large ophthalmic practice, I frequently am compelled to perform the most delicate and painful operations upon the eye of timid patients suffering from heart disease in its various forms. I never refuse to give such patients chloroform; and the only difference that I make in such over other patients is, if possible, the more care in establishing the safe stage of complete anæsthesia.

The *sixth* cause of death during the administration of ether or chloroform is from excessive administration. No one can doubt that the dose of an anæsthetic can be made large enough to kill, by enfeebling and finally paralyzing the nerve centres from which the heart and lungs draw their inspiration. As I have said before, there is a broad gulf between that degree of anæsthesia which only suspends so much of cerebral action as still allows full play to the vital organs—a perfectly safe condition for surgical operations—and that fatal overdose of the anæsthetic from which there is a suppression of the cardiac centres of innervation. Surgeons often employ ignorant assistants to administer the anæsthetic, who conceive it to be their duty to keep the saturated cloth to the nose of the patient, and they know no stopping point. Unless watched by the surgeon, whose attention should be concentrated elsewhere, they go on applying the vapor in spite of complete narcotism. When through this overdose the vital functions are suspended, the killing should be put to its proper cause—an overdose through ignorance; another clear case of mal-administration.

The *seventh*, the only legitimate and rarest of all causes of death from anæsthetics, now faces us. It is that unknown condition called idiosyncrasy, in which anæsthetics show themselves poisons of extreme activity. The patients who carry about with them this innate fatality exhibit it by no recognized signs. When such persons die from the toxic inhalation the autopsy reveals absolutely nothing to indicate the destructive effects of the poison.

We call the practice of medicine empirical, because every dose of medicine we administer to a patient for the first time is more or less an experiment. We can not in advance say that because a drug is expected to act in a previously established way it will do so in the case before us. The every-day experience of physicians teaches them not to be surprised if now and then they should obtain diametrically opposite results from those looked for. I have known opium to produce intense pain; it is the common remedy to allay it. I have known Dover's powder to purge violently, a similar effect to be repeatedly produced from a few grains of quinine or a single dose of bromide of potassium. I have known one-half grain of iod. pot. to cause a most distressing coryza, and a fragment of a grain of mercury to excite the most profuse ptyalism. How often a single moderate dose of the narcotics in constant use has put the patient under the sod, the grave alone can tell. To the world without the death is always attributed to the disease for which the dose has been judiciously prescribed. The administration of the remedy was based upon the great good that it had accomplished in controlling these very symptoms in thousands of cases. The idiosyncrasy of the individual in these special instances was the immediate cause of the fatal issue; a condition which could not have been foreseen, and therefore no precautions could have guarded the physician against it. In these cases, which can not be very rare from the variety and number of potent drugs used by practitioners, the fatality following the dose administered is often not recognized, even by the medical attendant. The patient died when the symptoms of the disease had not indicated so serious or so sudden a result, but the reason why, most physicians do not consider.

From the exclusive use of any one potent remedy the idiosyncrasy must be rare, so that in taking one, say opium, a powerful drug most extensively used by every physician and applicable to most of the diseases to which the human subject is liable, peculiarities in constitution, exhibiting dangerous symptoms from comparatively small doses, are only now and then met with. When we contrast as to frequency cases requiring serious surgical operations against the many little and great dis-

turbances of the various organs of the living economy brought to the notice of the physician and requiring the use of opium, we find the surgical cases in the ratio of scarcely one to a thousand. Now take such a remedy as chloroform, only used by surgeons in these serious surgical cases, and hunt up idiosyncrasies for this drug. Their occurrence must be so very rare that a surgeon of very large experience is not likely to see more than one fatal case in a long life devoted to surgical practice; and a great many surgeons of very large experience have never met with one. Syme, whose surgical career in Edinburgh is known to every one in the Profession, was so uniformly successful with anæsthetics, never having lost a patient from the inhalation, that he adopted this axiom: "Show me a case for operation, and I will show you a case for chloroform." Grant, in his admirable treatise on Surgery, says: "I have seen chloroform given in some thousands of cases during upwards of twenty years, both in hospital and private practice, without a single death, or even an approach to a fatal termination." Elser, of Strasburg, had used chloroform 16,000 times, and had never seen a fatal case. Kidd, of London, had seen it administered upwards of 10,000 times, and had seen no fatal case, either in his own practice or that of his friends. The French surgeons in the Crimea reported 30,000 cases of chloroform administration and not one fatal issue. In the English army in the Crimea chloroform was administered 12,000 times with one single death reported. In the Confederate service chloroform was exclusively used in a great many thousand operations without a death, as far as I am aware of. Surgeon McGuire, of Jackson's corps, reported 18,000 administrations without one death. Richardson had seen it used in the London hospitals 15,000 times before he met with the first fatal case. Billroth, of Vienna, had administered chloroform 12,500 times before he met with his first accident. No statistics that I am aware of have been published of the uses of chloroform in the Federal army, nor in the recent wars of the French, German, and Austrian empires. Enough has been already said, however, to prove that under careful administration deaths from chloroform must be among the rarest of accidents; so very rare that it should not be seriously considered.

To the testimony above I will add my own individual experience. I have been teaching and practicing surgery twenty-five years, and have used chloroform largely during that entire period in private and hospital practice, in the army as well as in civil life, and have had occasion to keep up the anæsthesia as long as three hours at a time. For some years I administered it on an average once every day. I have given it to the very young and to the very old; to the strong as well as to the weak; to the healthy as well as to the extremely diseased, regardless of the organ in which the trouble may be located. I have seen patients thoroughly anæsthetized by a half drachm of chloroform, and I have used an entire pound upon an individual before I could secure full narcotism. I have accepted Syme's axiom, and given chloroform to every one who has applied to me for a serious surgical operation, and I have yet to see the first death either in my own practice or that of my friends. Now let us sum up the evidence which I have collected, and here we find an array of *over a hundred thousand administrations of chloroform with three deaths*, even attributing them all to idiosyncrasy. Can any stronger proof of the excessive rarity of the fatal indiosyncrasy in chloroform be needed?

With ether, although we have no statistical records, I believe that deaths during its careful and full administration are equally rare; and that in America, where it was discovered and has been most used, especially by the Boston surgeons and some in New York (for its administration seems to be chiefly confined to the Northern cities), we may find surgeons like those above mentioned who have records of thousands of cases without a single fatal issue. And yet deaths do occur during the administration of both ether and chloroform. Some surgeons seem to have been unlucky enough to have had a great deal more trouble than should have fallen to the share of one administrator. I, for one, do not believe in lucky and unlucky surgeons. I believe with Napoleon, that luck usually accompanies the heavy battalions.

Against the fatality of idiosyncrasies we can hardly guard, and yet something even here might be done. Three or four

times in my own experience I have had cases in which I at the time thought that the anæsthetic which I was administering was badly borne. Once while giving chloroform I noticed a sudden and unusual pallor. I stopped the administration, and the patient, by breathing pure air, soon assumed a natural appearance. I resumed the chloroform with similar results. I then exchanged it for ether, and had no further appearance of these symptoms. What might have occurred had I continued the chloroform, I am unable to say, possibly nothing but the most satisfactory anæsthesia. It might have been a groundless fright, still I will call it an idiosyncrasy. In a second case, a young girl of seventeen, to whom I had given no stimulus, I thought that the pulse was rapidly enfeebled by the chloroform inhalation, and I exchanged the anæsthetic for ether. These cases occurred some years ago. More recently, since the sulphuric ether has been urged as the safer anæsthetic, I, with no reason for doing so beyond popular clamor, have used it very freely. In one or two instances I thought it was badly borne, causing intense congestion of the head or excessive irritation of the throat. In these cases I stopped the ether and administered chloroform, with, as I conceived, marked relief. My fears here again might have been altogether groundless, as in the chloroform cases before mentioned.

I constantly see cases which excite the most anxious solicitude on the part of timid and inexperienced operators—a marked enfeebling of the pulse, feeble respiration, and relaxation of the skin with perspiration pouring out upon the surface. Experience has taught me that this relaxed condition, which so many are terribly alarmed about, is only the precursor of vomiting, and is the signal that I must prepare the patient for emesis. This condition, so constantly met with by the every-day administrator of chloroform, has induced many an inexperienced operator to believe that he had come within an ace of having a fatal case of inhalation on his hands.

When one uses chloroform or ether in the way as explained, he might confidently expect no trouble. Should he believe that chloroform always weakens the heart's action, he puts in anticipation the best of cardiac stimulants, a drink of whisky, in the

stomach of the patient, where it is ready for use if wanted, and can do no harm if it is not required. I attribute the uniform success of chloroform inhalation in the hurry and confusion of battle-field surgery to this invaluable combination of whisky with chloroform.

Suppose, however, that from the tediousness of the operation or otherwise there should be a very marked enfeebling of the heart's action, the course to be pursued is very simple. I believe that it is now conceded that chloroform produces anæmia of the brain, and that the various phenomena observed during the administration is caused by the diminishing blood supply to the various nerve centres. Every one has observed the suddenness with which the anæsthetic effect is diminished with the act of vomiting, with its accompanying congestion of the head. Nélaton took this ground, and has given to the surgical world that admirable mode of restoring vigor to the heart by hanging the patient up by the feet, so as to allow gravity to supply the needful stimulus to the brain. When there is no longer the anæsthetic to the nose of the patient, as every expiration is getting rid of a certain amount of chloroform vapor from the circulation, fresh air would naturally suggest itself as a substance to be freely admitted. Should the respiration cease while the heart still acts, however feebly, artificial respiration should be at once instituted and continued either until the heart altogether ceases to beat, or until resuscitation is fully established. If the respiration and heart's action can be detected, however feebly, experience shows that fresh air and an inclined position is all that is wanted for a reëstablishment of the vital functions; and that death under this condition may often with truth be attributed to the too much manipulation of the frightened attendants. Electricity may help the respiratory effort should it be properly applied with proper apparatus at hand; but according to Richardson's experience and observation, it is most frequently the name of electricity application only, and in by far the majority of cases it does more harm than good.

In those most rare but truly unfortunate cases in which the heart stops beating and remains so for only one single minute, the patient is dead absolutely, and nothing that the surgeon can

do will restore him to life. The surgeon, unwilling to acknowledge his utter helplessness, keeps up much doing of many things for many minutes or hours, but all to no avail. These fatal cases should be only the very rare ones of idiosyncrasy which we may hear much of, but may never see, and yet may occur to the most careful. The majority of deaths ascribed to chloroform are either otherwise explained or properly attributed to mal-administration; *a fruitful source of trouble being that timidity of surgeons which will not allow them to safely anæsthetize patients*, but drives them to operate before a sufficient amount of the anæsthetic is administered to protect against the dangers of reflex action. I truly believe that a great many more cases of death under chloroform are to be attributed to the want of it than to an overdose, which comes only next in rarity to deaths by idiosyncrasy; and that the timid surgeon and not the good chloroform does the damage.

When persons suddenly die on the street or at their homes, the coroner is ever ready with his convenient verdict of heart disease, when most frequently the heart is a perfectly healthy organ, and has been altogether innocently accused. If in any case an anæsthetic has been used and a fatal accident occurs, death is immediately ascribed to the inhalation, when in reality it is due to other causes altogether extraneous to the administration. Notwithstanding this gross error in diagnosis, the reported death has its disturbing influence upon the Profession; and when frequently reproduced in the daily papers will frighten the masses.

As chloroform has been up to within a few years the anæsthetic in nearly exclusive use, very naturally a great many more deaths have been attributed to it than to the much less used ether. Up to within a few years surgeons at large have had every confidence in chloroform, and the language was not strong enough to express their unbounded admiration. Recently this confidence has been disturbed by the much talked-of toxic effects of chloroform, which has frightened the public and excited the timid in the Profession until many have imbibed the infection, not knowing why, and have taken to ether, a substitute of limited use, which has not had the opportunity of having as many deaths attributed to its administration. I also

three years since, under the pressure of public opinion, or rather the timidity of patients who expressed a preference for it, took up ether and gave it largely. For a short time I used nothing else, but its administration proved unsatisfactory, on account of the great distress occasioned by its forced inhalation in a concentrated form, from the excessive nausea induced and the irritable cough often excited. As we have all so often done with new remedies, relinquishing them in favor of the older ones which had previously been our reliance, so I found myself getting back to chloroform, which I now exclusively and daily use with all the confidence that so useful an agent ought to secure.

Believing, as I do, that both ether and chloroform can kill when carelessly, indifferently, or excessively administered; believing also that either of them will kill when the idiosyncrasy is met with in which its usual benign effects become toxic, and that these two remedies will do so in equal ratio to the number of times in which they are inhaled, I naturally confide in the one which experience has taught me to be equally safe, more agreeable, less nauseating, and more efficient. My acquaintance with chloroform has been of the most satisfactory kind. I have seen it administered at least six thousand times, and I have never seen trouble from it. Its effects have been uniformly good.

Since my attention has been turned to the decided advantages of chloroform over the less efficient sulphuric ether, I have often asked surgeons from a distance, with whom I may have been casually thrown, what anæsthetic they use. I find many say chloroform exclusively, from which they had never had an accident, and in which they have unbounded confidence. Others tell me that they administer ether; not that they had ever had trouble with chloroform, but that they had been made somewhat timid by reading reports of fatal cases. They at the same time acknowledge that they do not obtain that satisfactory anæsthesia as they formerly did under chloroform; and that even now when they find that their patient is not properly influenced with the ether, they pour on the chloroform, feeling that they can look confidently forward to a speedy and thorough anæsthesia.

Believing, as I do, that ether and chloroform will not prove dangerous if carefully administered, except in those extremely rare cases of idiosyncrasy, when both will prove toxic in like proportion, then in the comfort of the administration, both to the patient and to the surgeon, ether, in my opinion, is not to be compared to chloroform as a general anæsthetic, and can never take the place of the latter. The wave of professional opinion is already moving back toward a returning confidence in the safety of chloroform, which many surgeons who administer it carefully have never had shaken.

There is no remedy really good in medicine which is not capable of mischief. More persons are killed every year from the abuses of opium than are attributed to chloroform from its discovery even to the present time. Deaths from this drug in England alone number three hundred per year. How many hundreds are to be added to this occurring under the careful administration of skilled physicians, we can easily conjecture. Yet who proposes to substitute for this king of drugs any of the milder narcotics? We are ready to accept the comparatively small fatality for the immense good it accomplishes. How often during the summer do we find in the daily papers reports of healthy persons dying suddenly from the too liberal potation of ice-water, yet who would listen with any patience to the so-called philanthropist who would wage war against this universal beverage? It has been stated that more persons are killed by slipping on fragments of orange-peel in the streets of London than from the inhalation of chloroform. No one suggests the destruction of orange groves on this account. No one finds fault with the laws of gravitation because persons continue to fall down and break their legs or necks. It is unfortunate for the individual, but the great laws of Nature must ever go on, and the great designs of the Creator viewed with wonder and astonishment. Shall we give up the use of horses or steam because accidents happen from both? Would we have all the rivers dried up because now and then a drowned man is fished up out of them? The great discoveries are for the good of the many, not for the few. You can not avoid every danger and supply every good.

With anæsthetics the little risk, infinitesimally small, is immensely counterbalanced by the protection from the very many dangers during operations, so well known and so often experienced when operations were performed without them. Chloroform, when judiciously used, is one of the safest active remedies of the materia medica, supplying nearly every good and avoiding nearly every danger. *"The greatest gift of God to man through natural science is chloroform."*

ART. II.—*On Kolpokleisis and other Allied Procedures as Means of Treating Vesico-Vaginal Fistule. Being an Answer to the Article of the late Prof. Gustave Simon, of Heidelberg, entitled "A Comparison of Bozeman's Operation with that of the Author."* By NATHAN BOZEMAN, M. D., Consulting Surgeon to the St. Elizabeth's Hospital, New York.

Introductory Remarks.—It was only a few months ago that I read in the January number of the "Richmond and Louisville Medical Journal," for the first time, a translation from the German of the report by the late Prof. Gustave Simon upon the six cases of vesico-vaginal fistule treated by him and myself in the surgical clinic of the University of Heidelberg in the autumn of 1874. Scarcely need I say these cases were operated upon by us with the view of determining the relative merits of our respective methods. I was glad to find that the views of the able German master had thus been laid before the readers of so popular a journal in this country, and especially to see the force or comprehensiveness of these views maintained by the introduction of all of the *fac similes* of the author's wood cuts, which were not produced by a prominent British journal in a later London translation of the same article. These wood cuts are, I conceive, of the greatest importance, not only to illustrate the peculiarities presented in these cases, but to show the differences between our respective methods.

The criticisms in the article upon me and my operation are such as would naturally be expected from a misapprehension of facts, and from a master who knew what he was about, and

wished to present the subject in the strongest possible light from his standpoint. Those contained in the introductory remarks of the translator "about certain things," as he terms it, are unwarranted, and from the spirit in which they were made will be passed over unnoticed. Now, under all these circumstances, I claim on the score of equal fairness and justice, and as an American, the right to lay before the readers of the "Richmond and Louisville Medical Journal" the other side of the question at issue between Professor Simon and myself, believing it will tend to a further advancement of science in this department of surgery at home and abroad, and to a corresponding amelioration of human suffering.

The first part of my reply will comprise a brief historical sketch of the labors of Professor Simon and myself up to the time that we met in Heidelberg, a tabular statement of the thirteen operations performed by us upon the six cases presented for treatment, and a correspondence between us about a year afterwards in relation to certain points of practice and to the results following some of our operations.

Now, to complete a reply to the translation as found published in the "Obstetrical Journal of Great Britain and Ireland," containing none of the wood cuts of Profesor Simon, and to introduce those necessary to illustrate my own views, as I propose to do in the second part of my reply, would be a manifest injustice to him and his operation, which I wish to avoid. The importance of this point will readily appear to all, when it is recollected that the review and criticisms of Professor Simon extend to my operations in the General Hospital at Vienna as well as to those at Heidelberg; and that in defence of the positions I have assumed it will be as necessary for me to refer to the former as well as to the latter. Besides this, Professor Simon, before commencing his review and criticisms, addressed a note to Dr. Beigel, of Vienna, in which he not only draws a comparison between his and my methods of operating, but between mine and that of Dr. Sims, which was made a pretext by Dr. B. through the "Wiener Medizinische Wochenschrift" to try to destroy the favorable impression made by my operations in Vienna, so ably reported by Dr. Ludwig Bandl, and to lug in

side issues disparaging to my former labors at home and abroad, evidently intending by it to counteract the effects of the stunning blow already given by me to Professor Simon's theory of kolpokleisis, and thus to bring into favor in the Austrian capital the method of Dr. Sims, but little known and appreciated there.

So in order to continue my discussion of the subject in a connected manner, and to answer fairly the criticisms of Professor Simon, it will be far better for his claims, as well as for my own, to take as a guide the translation containing his wood cuts, as found in this Journal. Therefore the second part of my reply will comprise a letter addressed by me to my friend Dr. J. F. Chauvean soon after I left Heidelberg (published by him in the "New York Medical Record"), and a translation from the German of Dr. Bandl's report with Beigel's criticisms. After this will follow an analytical and critical inquiry into the peculiarities, operations and results in all six of the cases jointly treated by Professor Simon and myself, as well as in the four individually treated by me in the service of Professor Von Braun at Vienna. Next I propose to examine some of the French modes of operating for vesico-vaginal fistule, with the view of showing how they have been influenced by German and American practice, and how little of real success surgeons there have been able to accomplish by the employment of the latter. In connection with this will also be presented the translation of a report by Dr. Paul Berger, of Paris, upon my operations in the service of Prof. Dolbeau at the Hospital Beaujon, with remarks and criticisms upon Dr. Sims' method, and upon his refusal a short time afterwards to meet me in a scientific contest, as Simon and Braun had found it agreeable to do in two most difficult cases, which each of us, individually, had been invited to examine and pronounce upon as to curability in the service of M. Péan at the Hospital St. Louis.

Now to indicate the scientific importance attached to eight of the eleven cases fairly submitted to me for treatment in the different hospitals at Heidelberg, Vienna and Paris, I will state here that they were regarded by the surgeons in charge as utterly beyond the resources of our art, except by such devices as kolpokleisis, *regarded by me under all circumstances as un-*

necessary and unjustifiable. In the case at Heidelberg (the third of my series), a woman from Holland, Professor Simon proposed to me, as a test of our respective methods of exploration, that he would make the first examination and state to his class the result, and then immediately submit the case to me for a similar decision as to what course of treatment was called for under the circumstances. His opinion, expressed in the most positive manner, was that the fistule *could not be displayed, and that oblique kolpokleisis was called for*—such as he had performed in his first case of the kind at Rostock. My opinion, expressed in a manner no less positive, was that the fistule, *by preparatory treatment* (gradual or siege approaches) *from twenty to thirty days, could not only be fairly displayed, but closed with conservation of the generative functions.* Scarcely need I say Professor S. upon the spot magnanimously turned the case over to me, instructing his assistants at the same time to give me all the coöperation needful to carry out my treatment. The other seven cases were more or less of the same character, and will hereafter appear more in detail. All were, however, resigned to me for treatment somewhat in the same manner. Two of the eight cases after completion of the gradual dilatation of the vagina were perfectly cured, each at a single operation; one at two operations; two so near it, each after one operation, that everybody admitted its possibility; one from three weeks' gradual dilatation was reduced to the greatest simplicity, but did not receive the necessary operation for closure of the fistule, as will hereafter be explained; one received only initiatory treatment, and was not again seen, but the result I afterwards learned was not satisfactory; one, the most hopeless of all, received initiatory treatment, but was abandoned for want of time and other reasons, which will hereafter be given.

From this then it will be seen that the great secret of success in these cases lay not so much in position, speculum and form of suture employed, as in the preparatory treatment (gradual or siege approaches); *a principle of practice first successfully applied by myself*, and the one above all others that has been in my reply to Professor Simon kept constantly in view as the distinguishing feature of our respective methods.

As to the great value of this principle of treatment there can be among enlightened physicians or surgeons but one opinion. Professor Simon himself admits that it is thoroughly correct, but says the same result can be accomplished by immediate incisions and dilatation; but this is simply begging the question, as his long experience and my own observation of his practice abundantly prove. Professor von Braun, in a letter addressed to me April 10, 1877, since my return to New York, speaks of it thus: "All cases that have been operated upon after your method have entirely recovered; not one has been sent away uncured. I shall endeavor to make known the results of all cases operated upon in my service, so that physicians may learn its real worth. I am persuaded that it will find here, with each year, more and more adherents, and as to myself, I shall contribute all in my power to introduce it in Europe."*

Dr. Bandl, May 27, 1877, writes me as follows: "Already in Vienna the gradual dilatation of the vagina as a preliminary step to reach the borders of fistules in difficult cases is becoming well known. Professors Billroth and Saltzer are now employing it. It will doubtless be gratifying to you to learn that Professor Saltzer invited me to operate in his service that he might better learn the method. This I did March 30th. The fistule, of considerable size and situated high up, was, after four weeks' dilatation, made quite accessible. I completed the operation in one and a half hours, using six sutures and a suitable plate (button). I removed the apparatus on the sixth day and found the cure complete. I think Professor Saltzer will order your instruments and operating chair. Besides this case, I have cured outside the General Hospital another having a large defect, and fifteen in the clinic of Professor von Braun, the most of them being difficult. In three of them no one expected a cure could be effected. In all I have seventeen cases, which you will soon have the opportunity of reading and judging."

Professor LeFort, under date of July 25, 1877, writes me from Paris thus: "Your patient left my service (Beaujon) a

* The extracts from this and the following two letters I introduce here without asking the consent of their authors, feeling that the general scientific interest of their tenor fully warrants the liberty taken.

very short time after you had removed the sutures. She did not speak to me of any incontinence of urine, at least I have no recollection of her having done so. She figures in my reports as a complete cure. I thank you for your good services." Here we enter upon our subject:

PART FIRST.

A, Historical Sketch—B, Tabular Statement of our Operations at Heidelburg—C, Our Correspondence.—Soon after the appearance of the paper in the "Wiener Medizinische Wochenschrift, Nos. 27–32, 1876, by Professor Simon as above entitled, I began a reply to the same, and had advanced very far with my work when the sad intelligence of the distinguished surgeon's death reached me at Paris. My first impulse was to finish my reply and publish it in accordance with the original plan, hoping that some one of the numerous followers of the German master would take up the discussion of the questions at issue between us, and answer the objections which I felt myself bound to make to his views of practice. But, after reflection upon all the circumstances of the case, I entirely abandoned the idea of a formal reply, and proposed to myself instead to review the whole field of French, German, English, and American operations. By this course I trusted to reach a solution of the important question, *What is the best and safest operation at the present moment for the cure of vesico-vaginal fistule, with preservation of the generative functions?*

I have been deeply engrossed with the subject from that time to the present, and hope at no distant day to lay the result of my labors before the Profession, believing that I shall thus contribute in a greater degree to the end proposed than I could do by pursuing any other course. But since I have carefully read the English translations of the article in question, and have found several criticisms therein which place me in a false light before the Profession, I deem it to be my duty to reply without delay.

Now, in order to do full justice to Professor Simon and his claims, and at the same time to place the differences between us as regards kolpokleisis and the best means of avoiding it in

a clear light, I will here introduce a few extracts from publications made by us respectively in 1868, 1869 and 1870.

In the first place, however, it is proper to say that in two articles published by me ("New Orleans Medical and Surgical Journal," January, 1860, and "New York Medical Record," December 2, 1867), I contended for priority in the operation of *transverse obliteration of the vagina in the urethral portion, kolpokleisis*, as a means of relieving incontinence of urine, supposed to be otherwise incurable. Professor Simon having anticipated me in this operation nearly four years, and having seen my claim in the last-named journal, felt himself called upon to prove his rights to priority, and this he did to my entire satisfaction in a letter addressed to me through the "Deutsche Klinik," numbers 45 and 46, 1868, and a translation of which he caused to be made and distributed among the Profession in America. Of the operation in question, and of his views at that date upon the treatment generally of vesico-vaginal fistule, he said:

"The reason why I have proved the validity of my claims of priority at such length is simply this, that, in my opinion, kolpokleisis is the most important plastic operation which in the last decennia has originated from one single man. The operation for vesico-vaginal fistula by uniting the borders of the defect is indeed, in its present perfection and precision, a much more important acquisition than kolpokleisis, and probably the greatest achievement of our century in plastic surgery; but it has not been carried to that perfection by a single man, but on the contrary, operators of all nations have contributed their share to it. The 'uranoplasty' of our ingenious countryman, von Langenbach, could alone be placed by the side of kolpokleisis, as far as the safety of the performance and its immediate success are concerned. It would rank higher still, on account of its more frequent occurrence, if its benefit for the voice in increasing its purity could be secured in all, or in the majority of cases. But as in many cases this result is not obtained at all, and in others only incompletely, kolpokleisis must be considered the more important operation, as in all cases it fully answers its purpose. This operation, which I invented at

the time when the obliteration of the vulva, proposed by Vidal, proved inefficacious in re-establishing continence of urine, has already been performed more than fifty times with complete success. Through it many patients with incurable defects of the bladder have been freed of the most intolerable suffering; viz., the incontinence of urine. I have myself in eighteen cases succeeded in effecting perfect obliteration, and every German surgeon who practices the art of curing vesico-vaginal fistules has recorded one or more successful cases of that kind.

"Since the invention of kolpokleisis, however, I have not remained satisfied with that mode of operation, to which you still adhere. On the contrary, I have constantly labored to perfect the method of operating; to multiply its chances of success in the different parts of the vagina, and to render its indications more precise. Whereas I had, in my first cases, operated only in the lower parts of the vagina, and had repeatedly met with small remaining fistules which could not be brought to heal, such occurrences are now extremely rare, and I close, as the case may be, in any height of the vagina, and immediately below the defect. Nay, in one case, where the fistule was high up in the fornix, I needed only one-half of the latter for the obliteration, thus preserving the vagina in its whole length (*see* my "Beiträge zur Plastischen Chirurgie," Prag., 1868, p. 216). Moreover, whereas I used to consider kolpokleisis indicated only where very large defects existed, I have now limited this indication a good deal, having cured at later periods very considerable defects by uniting the borders of the wound by sutures like these (⁀, T, ⅄, $\overline{⅄}$), by resorting to incisions along the sides and parallel with the sutures, and even by transplanting a flap from the vesico-vaginal wall. The size of a defect has, for the reasons enumerated, during the last five or six years, not been in my eyes an indication for kolpokleisis. On the other hand, I have found, among the large number of difficult and complicated cases which have come under my treatment, several in which it was either impossible or too dangerous to unite the borders, so that here I resorted to kolpokleisis.

"So much for kolpokleisis. I avail myself of this opportunity to present to you, esteemed colleague, and to your countrymen,

a statement of the growth and progress of the operation for vesico-vaginal fistules in Germany, as much on this subject may still be unknown to you. My statements will no doubt be for you—the most experienced operator on fistules in America—of the greatest interest, as you will thereby perceive that the operation in question was fully practiced in Germany before you and Sims came forth with it in England and France; that in this country it has been carried to a simplicity, perfection and certainty of success which it has not attained in any other country, and that especially your American method and its modifications have been surpassed in every respect. Without fear of contradiction, I believe myself justified in considering that, of all surgeons, I have been most extensively occupied with this operation, practically and theoretically, and have most promoted its perfection. For this reason it will not seem extravagant to you if I speak in the following more particularly of my method of operating and the results achieved thereby. . . . . My results *in toto* are consequently the following:

Of 118 fistules which existed in 105 patients—							
"	104	"	"	"	"	92	" were completely cured.
"	5	"	"	"	"	5	" closed except small openings.
"	3	"	"	"	"	2	" as incurable, dismissed.
"	6	"	"	"	"	6	" died.

"Thus in comparing the results of 1859 by the old imperfect method with those attained after that year by means of the improved one, the proportion is considerably in favor of the latter. While previous to 1859, of 22 fistules, only 14 (equal 64 per cent.) were cured, and 2 patients (equal 9 per cent) died, after that period of 96 fistules which existed in 83 patients, 89 (equal 92⅔ per cent.) fistules in 77 patients were cured, and only 4 patients (4⅓ per cent.) died.

"With what safety the cures are effected by my simplified method, the following report of my latest operations may serve to inform you, besides my works of 1862 and 1868, in which the results are given in detail. During six months' residence at Heidelberg (from May to October, 1868), we have operated on, in the hospital, 14 fistules in 14 patients. I have performed 12, and my assistants, Messrs. Heine and Hotz, each 1. Three

of the fistules were very small; they had remained after previous operations at Rostock; the other 11 were new cases, but 6 of them had been operated already once or several times by other surgeons. Several of them were of considerable size; in 5 cases 12 sutures were required in order to close them; in 1 even 15. *Moreover, different complications existed, which made it necessary three times to embrace the posterior lip of the os uteri in the suture; once to overlap an existing atresia of the urethra; once to remove one; twice to perform kolpokleisis; and once to make a transplantation of a flap from the vulva.** Yet notwithstanding these troublesome circumstances all 14 patients were cured by 17 operations. Of these, 11 required only 1 operation; 3 had to be operated on twice each; among them were 2 small fistules which had remained from previous operations.

"After such results, you will agree with me, esteemed colleague, that fine silk thread, which is much easier to apply than silver wire, is in no wise inferior to it, and that the catheter in permanence is an unnecessary and even detrimental burden to the patient. And you will also feel yourself in justice bound to acknowledge that the operation of vesico-vaginal fistula has reached, in Germany, a higher degree of simplicity, perfection, and certainty than in any other country."

As further proof of the value attached by Professor Simon about that date to kolpokleisis, I will quote the views entertained by him upon the extension of the principle, as found published in his justly popular work on Plastic Surgery ("Beiträge zur Plastischen Chirurgie," Prag., 1868, p. 216). Having found that transverse obliteration of the vagina in its lower third necessitated too great a sacrifice of the vaginal tract in cases where the fistule was small, but inaccessible on account of its height, he added two other forms of procedure, making in all three, and designated them topographically as follows:

"1. Transverse obliteration of the vagina in the urethral portion.

"2. Transverse obliteration of the vagina within the limits of the base of the bladder.

* The italics are mine.

"3. Oblique obliteration of the vagina in one or the other of the vaginal arches, according to the right or left situation of the fistule."

Again, as a guide for the employment of these classified procedures, he laid down (op. cit., p. 229) the following eight indications, based principally on the pathological conditions of the vagina and cervix uteri:

"1. Great loss of substance, making it impossible to bring the two sides of the fistule together.

"2. Inaccessibility of the fistule from its high position, from the inversion of its edges, etc.

"3. Loss of the infra-vaginal cervix, and danger to the peritoneum.

"4. Hæmorrhage into the bladder, where considerable, after operations.

"5. Confinement by adhesions of the stump of the cervix uteri, inside the bladder.

"6. Atresiæ vaginæ above the fistule, with immobility of the posterior border of the latter.

"7. Obliteration of the urethra, with one fistule below and another above.

"8. Uretero-vaginal and uretero-uterine fistules."

The next year ("Deutsche Klinik," No. 15, 1869), in an article entitled "Effects of Urine and Saliva upon Tissues deprived of Epithelium," Professor Simon recorded some fifteen experiments made upon man, dogs, and rabbits, with the view, as stated, of controverting a popular error, with regard to the injurious influences of these secretions upon fresh wounds. Of the effects of urine he said:

"It has been an undisputed dogma until quite recently that urine by its chemical properties has a very injurious effect upon the unprotected tissues of animals; that it prevents union by first intention; that it destroys fresh cicatrices, and that when infiltrated in the tissues it leads in the end to their necrosis. This view has been held not only with regard to decomposed and alkaline, but with regard to undecomposed and still acid urine. The latter has been supposed either in itself to have an injurious effect, or to rapidly undergo an ammoniacal

decomposition when in contact with unprotected tissues, and then to develop destructive properties. Repeated observations which I have had the opportunity of making at the bedside, and experiments on animals, by which I have sought to confirm and to complete these observations, have contradicted this dogma in its main points; and I have already, in several papers relating to operations on the generative and urinary organs of women, expressed my disbelief in it. In these papers, however, the experiments were only mentioned, and not described in detail, so that my views, as therein expressed, were without their complete demonstration. I am therefore induced by the importance of the subject to repair my omission here, and at the same time to explain the practical conclusions which may be drawn."

The first five of these experiments were made with fresh urine showing acid reäction. After injecting the fluid into the subcutaneous tissue of several rabbits and dogs, and seeing that it disappeared by absorption in a few hours without leaving any trace of its effects, it was then tried upon man, with a like negative result. Here the exposed surfaces resulting from incisions for hare-lip, and from other plastic operations about the face, were *washed* with the secretion, and then brought together with sutures in the ordinary way. In every case union by the first intention was said to take place with the same readiness as though water had been used. Even urine from a case of vesico-vaginal fistule loaded with pus and mucus, though still showing acid reäction, was used upon several dogs without changing the above results in the slightest particular.

The sixth and seventh experiments were made with ammoniacal urine, unfiltered and filtered. From their importance as relates to the operation of kolpokleisis, I will here copy *in extenso:*

"Experiment 6. From two to four drachms of alkaline urine, containing triple phosphates, mucus, and pus, were injected into several dogs and rabbits. *Result:* In all cases a large abscess was produced, containing dark and offensive pus, and the skin covering it soon sloughed, and left a large, slowly healing ulcer.

"Experiment 7. From two to four drachms of alkaline filtered urine were injected subcutaneously on several occasions into dogs. *Result:* In all these cases also abscesses were produced, but they ran their course with less destruction of the skin than in experiment 6; they made a smaller aperture in breaking, and healed more rapidly."

The eighth, ninth, and tenth experiments were made upon the urine itself in open and closed vessels exposed to an average temperature with the view of determining under varied circumstances the time necessary to convert acid into alkaline urine. As these experiments are also important as illustrating the principle underlying the employment of kolpokleisis, I will copy these *in extenso:*

"Experiment 8. Half a drachm of good pus was mixed with half a pound of urine, and the fluid exposed daily for five or six hours to a temperature of 30°–50° C. The glass was not closed. *Result:* Alkaline reäction did not appear till the sixth day.

"Experiment 9. Two drachms of lean meat one day old were placed in one pound of fresh urine. The vessel was left open, and exposed daily for four to five hours to a temperature of 30°–50° C. *Result:* Alkaline reäction first appeared on the fifth day (after 106 hours).

"Experiment 10. The same experiment was performed with the modification that the vessel, having been completely filled, was closed, so as to exclude the air. *Result:* On the tenth day, when the vessel was opened, the urine was still acid, and the meat was not decomposed."

The remaining five experiments were made with the view of explaining the mechanism and evil results of infiltration of urine resulting from rupture of the male urethra, and from other causes.

The deductions drawn by Professor Simon from these experiments are to be found in his concluding remarks, which, from their direct bearing upon the subject before us, I again quote *in extenso:*

"The doctrine established by the foregoing experiments of the harmless effects of acid urine upon unprotected tissues,

wounds, and cicatrices, which was first suggested to me many years ago by my observations at the bedside, and which has since received manifold confirmation in the experience of surgeons and gynæcologists who operate on the sexual and urinary organs, has a bearing, the extensiveness of which can not be overrated, upon the mode of performing and upon the result of such operations. In former days, when operators used the utmost care to convey the urine away from the wound, but paid much less attention to the mode of executing the operation, the result of the operations was most unfavorable. Since, however, the opposite plan has been adopted of expending the utmost care upon the execution of the operation, and adopting few or no precautions for the conveying away of the urine, most remarkable success has been attained. A good many years ago, Wutzer, in operations for vesico-vaginal fistula, used to puncture the bladder above the pubes in order to convey the urine away, and fastened the patients by straps in the prone position until the effects of pressure on knees and elbows rendered it impossible to maintain it longer. He was compelled, however, to repeat the operation ten or twenty times for the cure of the smallest fistulæ, and could only exceptionally record a complete cure. I, following an absolutely contrary principle, never even introduce a self-retaining catheter, and have often allowed the patients soon after the operation to leave their beds, and go for a walk with the sutures in place. Nevertheless, I have already cured more than a hundred fistulæ, most of them by a single operation, and, in common with all operators of the present day, I regard an incurable fistula as an extremely rare exception. But although the mode of executing this and other plastic operations upon, or in the neighborhood of the urinary organs, such as that for recto-vaginal fistula, or ruptured perineum, as well as urethrorraphy and urethro-plasty in the male sex, has been immensely improved; although it is scarcely now maintained that acid urine hinders union by first intention, yet the doctrine of its harmless effects upon wounds and cicatrices, and especially the fact that no alkaline decomposition is set up in it by the secretion of united wounds, have not yet been so fully recognized as might be desired in the interests of the patients con-

cerned. For American, English, and French surgeons after the operation for vesico-vaginal fistula or similar lesions about urinary or genital organs still always employ the self-retaining catheter, or at any rate believe that they must not allow the urine to be passed at pleasure, but only to be drawn off by catheter. But this precaution, which causes so much inconvenience both to patient and surgeon, and which may set up mischief through irritation of the bladder and urethra, will, with better knowledge, vanish from the after-treatment and give place to the far simpler and more rational mode of management, which I have followed for years with the best results; namely, to provide for the cleansing of the external genital organs and the vagina, and to allow the urine to be passed at pleasure (*see* my article 'On Kolpokleisis and the Operation for Vesico-Vaginal Fistula in Germany,' in this Journal, 1868. Numbers 45 and 46).

"In the rare cases in which the urine of a patient, on whom the operation of vesico-vaginal fistula is to be performed, has an alkaline reäction, and is therefore actually injurious, the operator will endeavor first to render the urine again normal, by treatment of the causes of its alkaline decomposition (extraction of a calculus, treatment of vesical catarrh, etc.). He will never undertake the operation while the urine is alkaline, unless, for other reasons, it is impossible to defer it. In such cases the utmost care must be used in the operation, that not a drop of urine may be able to penetrate between the margins of the wound. A self-retaining catheter is not to be introduced, because it would not be tolerated, and by increasing the irritation, might set up acute cystitis. In one case of vesico-vaginal fistula, in which I was obliged to carry out the operation while the urine was alkaline from the effect of obstinate vesical catarrh, I attained the cure by using the most minute care in the execution of the operation; in a second case the attempt failed twice, and I did not succeed in closing the fistula until I had cured the vesical catarrh.

"With regard to the treatment of infiltration of urine, this consists, according to the direction of surgical text-books, in deep incisions into the most prominent parts. It is intended by

this means to let the infiltrated urine escape from the tissues, and to allow a free outflow to that which still forces its way through the lesion in the bladder or urethra. But relying on the experiments above described, I would, in a future case, somewhat modify this method of treatment. Instead of the numerous incisions, I would make an opening between the perineum and urethra; that is to say, I would perform perineal section, and for the first few days leave in place a catheter passed through the wound into the bladder. The urine already infiltrated I would leave to its fate. In this way the wound produced would be much less than with the treatment hitherto adopted. Any further infiltration would be most completely prevented, the urine having a direct outlet; and the urine already infiltrated would not, as has been hitherto feared, develop any injurious properties; but, as the experiments show, would be reäbsorbed without harm. Even when a slough has been already formed, I consider opening the urethra by perineal section to be the best mode of treatment."

From the foregoing extracts there can be no doubt of the fact that Professor Simon, in 1868, was thoroughly convinced of the value of kolpokleisis, performed for whatever cause; and equally evident is the error into which he had been led as to the extent of my appreciation of it. Had he known that I had employed it only a single time in about the same number of cases that he had then treated, he would not have spoken so disparagingly of my method of operating, and of the methods of other surgeons in comparison with his own. An advance from 64 per cent. of cures, as shown by his old method, to 92⅔ per cent. under the new or simplified method, was indeed enough cause for congratulation, and fourteen successful operations out of seventeen—82 per cent.—undoubtedly marked a very high degree of surgical skill. But what was the character of these fourteen cures? The lines in the first extract, which I have italicised, should be carefully read, showing that five must be subtracted from the fourteen, being the number of cases in which the generative functions were destroyed, when nine—64⅓ per cent.—of legitimate cures remain, to say nothing about the hiding away of the obliterated part of the urethra in one case, and unusual expedients in the other two.

These results of Professor Simon justify me in putting the question thus: If 35⅔ per cent. of expedients which destroyed the generative functions were necessary in the treatment of ninety-six fistules in eighty-three patients from 1859 to 1868, when he had reached his highest degree of success, what did they amount to in the twenty-two fistules in twenty-two patients who were treated by his "old, imperfect method" from 1853 to 1859? I will return furthermore to the subject of alkaline urine and the deductions drawn by Professor Simon from his experiments.

Here I may be permitted to tabulate my experience during a part only of the "old, imperfect method" of Professor Simon, extending from May, 1855,* to June, 1859:

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* This was the date (May, 1855) at which I, at Montgomery, Alabama, first associated my new form of suture with incisions and dilatation of vaginal atresias (gradual preparatory treatment), in complicated cases of vesico-vaginal fistule, and thus established the standard of my form of cure with preservation of the generative functions, to which I have ever since adhered without modification, except in the two cases here noted, both of which occurred before I had fairly perfected my system. Professor Simon, at Darmstadt, as appears from a comparison of his recorded experience with mine, in the same year and in the same month, associated his double interrupted silk suture (doppel naht) with his new principle of kolpokleisis, as a means of compensating for loss of tissue, leaving vaginal atresias untreated, entirely sacrificing the generative functions, and so established the standard of his form of cure, to which he adhered with but little modification up to the time of his decease. Dr. Sims, who has unfairly claimed the first success in the treatment of vesico-vaginal fistule in America, was at this date using in New York his defective clamp or quilled suture, *which was totally inapplicable to any form of fistule associated with vaginal atresia.* Fourteen months later, however (June 24, 1856), and only six weeks after the description of my new system appeared in the "Louisville Review," Dr. Sims renounced his old form of suture, and employed for the first time the simple interrupted silver suture, which he soon afterwards associated with his improved duck-bill speculum, *with the folding of the edges of the fistule, and sometimes the cervix uteri into the bladder*, and with gradual preparatory treatment of vaginal atresias, *sacrificing to a limited extent the generative functions*, and thus established the standard of his form of cure, to which he and his followers have ever since adhered, with but little, if any, modification. I had previously (from June, 1853, to May, 1855) been a follower of Dr. Sims with his defective clamp suture, and had succeeded in curing only two simple cases of vesico-vaginal fistule out of six (33⅓ per cent.), which was very little, if any, less than his success with it, according to the results which he had recorded up to that date.

Upon fifty-two fistules in forty patients sixty-eight operations were performed.

Upon forty-four fistules in thirty-four patients fifty-three operations were performed. These were completely cured with entire preservation of the generative functions.

Upon one fistule in one patient two operations were performed, by including the posterior lip of the cervix uteri, with loss of the generative functions (May, 1856).

Upon one fistule in one patient one operation was performed, for kolpokleisis, with restoration of continence of urine, but loss of the generative functions (March, 1859).

Upon four fistules in two patients eleven operations were performed. These were completely cured, with preservation of the generative functions, but relapsed, owing to the incompleteness of the preparatory treatment (incisions and dilatations).

Upon one fistule in one patient one operation was performed. Patient died on the sixth day, though the autopsy showed complete closure of the fistule.

Upon one fistule in one patient no operation was performed. Considered incurable, and discharged without operation.

The details of the above cases are to be found in the "Louis-

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It was therefore only after Dr. Sims *had been driven* from the support of his *clamp suture contrivance*, as I expect to show more in detail after I shall have finished my reply to Professor Simon, that he caught up at the eleventh hour the *simple interrupted silver* wire, which he fastened on the *torsion principle* of Methauer and Gosset, in use already by them for twenty-five years, and which he united with the *principle of vaginal dilatation* then in use by me for more than three years, all too without the slightest acknowledgment. His procedure, thus made up, he heralded forth to the world as something entirely new, claiming that his discovery of silver wire (adroitly purloined from the published experiments of the late Dr. Henry S. Levert, of Mobile, Alabama, "Am. Jour. Med. Sciences," May, 1829) had done all this and even more, and that in the *interest of posterity* he had the right to proclaim the fact not only before the New York Academy of Medicine at one of its anniversary meetings, but from the house-tops (Silver Sutures in Surgery, 1868).

Such are the facts briefly stated upon which rest the American claims to superiority in the treatment of vesico-vaginal fistule, and these I present here for the reasons that it will better enable me hereafter to distinguish true from false teachings both at home and abroad, and to point out some of the errors still operating to retard scientific progress in this branch of gynæcological surgery.

ville Review," May, 1856, the "North America Medico-Chirurgical Review," July and November, 1857, and the "New Orleans Medical and Surgical Journal," January, March, and May, 1860.

I think I am warranted in saying that this series of cases was the largest, and embraced a greater proportion of legitimate cures than had ever been published before by any single surgeon. Forty-four fistules in thirty-four patients, cured in fifty-three operations, with preservation of the generative functions, give a result that scarcely admits of comparison with that exhibited by Professor Simon at the date of his "simplified method," nine years later, including even his cases in which the generative functions were impaired or destroyed, and points to some other explanation than that of the position of the patient, the speculum, or the silk or silver sutures. What is that explanation? The recognition of the curability of the atresias of the vagina, and the adoption of a successful mode of treating them, simply as a preparatory measure. This I contend to have done almost at the outset of my experience, and I associated therewith a form of suture which combined advantages in the utilization of inodular tissue which were possessed by no simple interrupted suture, whether of silver or of silk, which had been previously in use. A careful examination of the details of the forty cases which I have tabulated above will show that a very large proportion of them presented very great obstacles. These difficulties were first met and surmounted by means of the knife and the dilator, and afterwards the cases were treated, as regarded the fistules, on general principles.

ART. III.—*Biographical Sketch of Dr. Hunter McGuire.* By OTIS FREDERICK MANSON, M. D., Professor of Physiology and Pathology, Medical College of Virginia, Richmond, Va.

The life and services of this distinguished Southern surgeon deserve more than a passing notice. Associated as closely and conspicuously as it was possible for a surgeon to be with the greatest war ever waged in America; following the standard of

the most brilliant military genius developed in the struggle, and aiding with all the resources of his art that intrepid brigade whose name has become immortal—the fame of its surgeon is inseparably united to that of the heroic band that stood "like a stone wall" in the face of assailing hosts.

Hunter McGuire was born in the town of Winchester, Va., on the 11th day of October, 1835, and was graduated at Winchester Medical College in 1855. He is the son of the late Dr. Hugh H. McGuire, an eminent surgeon and physician, by whom his scientific studies were directed. Fortunate for the student was it that he possessed such a father; one so capable of aiding in the development of his mind and of guiding the young surgeon's hand. Soon after his graduation, Dr. McGuire continued his studies in Philadelphia, and returning to Virginia, was graduated at the Medical College of Virginia. He returned to Winchester and practiced his profession in connection with his father.

He was soon afterwards appointed Professor of Anatomy in the Winchester Medical College. At the commencement of the war between the Southern and Northern States, Dr. McGuire volunteered in Company F, Second Virginia Regiment. He marched with his regiment to Harper's Ferry in April, 1861, but soon after was commissioned surgeon in the Virginia State Forces, and in May was appointed Medical Director of the Army of the Shenandoah, then under command of Gen. T. J. Jackson. Afterwards when General Jackson was relieved of this command and had organized the First Virginia Brigade (the future Stonewall Brigade), he requested that Surgeon McGuire should be assigned to him as brigade surgeon. He continued to serve as chief surgeon of Jackson's command until the fall of the great soldier, ministering assiduously to his beloved leader in his last moments.

We may remark here that, although sometimes high positions may have been occupied in the Confederate service by incapable persons, yet this could never be said truly of those serving under the eagle eye of Stonewall Jackson, who possessed not only the talent to contrive and capacity to perform great deeds, but also the equally important attribute of true

genius; viz., the judgment to select those competent to assist him in their execution.

It was, therefore, a great honor in itself to have served satisfactorily on the staff of such a commander; but a higher meed of praise than this belongs to the subject of this notice. He possessed his entire confidence, his warm friendship, and received his highest commendation. The sword presented by Jackson to his surgeon could only have been bestowed on one possessed of indomitable energy, transcendent skill, and unflinching fidelity.

After the death of General Jackson, Surgeon McGuire served as chief surgeon of the Second Corps of the Army of Northern Virginia, under Lieutenant-General Ewell, and afterwards as Medical Director of the Army of the Valley with Lieutenant-General Early, until the surrender at Appomattox.

In May, 1862, at the battle of Winchester, Virginia, Surgeon McGuire inaugurated the plan of releasing captured medical officers. Eight Federal surgeons were set free upon the simple condition that they would endeavor to procure the release of the same number of Confederate surgeons. Afterwards General Jackson himself approved of this action. A few weeks after this, all of the medical officers who had been confined by both parties as prisoners of war were released and returned to their respective commands. Although this plan of exchanging medical officers as non-combatants was interrupted by some disagreement between the Commissioners for the Exchange of Prisoners, yet Dr. McGuire continued to release surgeons whenever it was in his power. As late as February, 1865, he liberated the Medical Inspector of General Sheridan's army. When Surgeon McGuire was himself captured at Waynesboro, in March, 1865, General Sheridan showed his appreciation of Surgeon McGuire's action by immediately ordering his liberation.

Surgeon McGuire was the first to organize Reserve Corps Hospitals in the Confederacy (in the spring of 1862, in the Valley campaign). About the same time he succeeded in perfecting the "Ambulance Corps." Four men were detailed from each company to assist its wounded from the field to the hospi-

tals in the rear. These men wore conspicuous badges, and were selected for their courage, etc.; no one else during a battle being permitted to leave the ranks for this purpose.

It is almost needless to add that Surgeon McGuire always received the hearty coöperation of General Jackson in his efforts to perfect the Medical Department in the field. In all reports of battles by the Generals commanding the forces with which he served, he was highly complimented for his zeal and ability. It was his good fortune to enjoy the personal friendship not only of General Jackson, but of Generals Lee, Early and Ewell, all of whom he attended when sick or wounded.

The war being ended, Dr. McGuire soon after removed to Richmond, having been appointed to fill the Chair of Surgery in the Medical College of Virginia, made vacant by the death of Dr. Charles Bell Gibson. In his new home he rapidly acquired an extensive practice, both medical and surgical. His remarkable successes in lithotomy, lithotrity, ovariotomy, etc., have placed him in the first rank of civil surgeons. As a teacher, he is fluent, lucid and impressive, and as a writer has contributed many instructive and interesting articles to Northern and Southern journals.

The skill and talents of Dr. McGuire have been recognized in a flattering manner in all sections of our country. Among the positions bestowed upon him, may be mentioned that of President of the Richmond Academy of Medicine, President of the Association of Medical Officers of the Confederate Army and Navy, and one of the Vice-Presidents of the International Medical Congress. These honors are the rewards of talent, industry, skill and high aspiration. "He won them well, and may he wear them long."

NOTE.—This article was prepared for the "Virginia Medical Monthly," to appear simultaneously in that journal and in the "Richmond and Louisville Medical Journal.—E. S. G.

ECLECTIC DEPARTMENT.

"Carpere et colligere."

ART. 1.—*Congenital Occlusion and Dilatation of Lymph Channels.* By SAMUEL C. BUSEY, M. D., Washington, D. C., Prof. of the Theory and Practice of Medicine, Medical Department of the University of Georgetown; one of the Physicians to the Children's Hospital; and Physician to the Louise Home. (With numerous wood engravings.)

(*Continued from page 245 September No.*)

CASE XLVI.*—A girl two years old. The middle finger of each hand was twice as long and more than twice as thick as the index fingers.

CASE XLVII.†—A Spaniard aged 50 years. At birth the first and second fingers of right hand were enormously hypertrophied. He could write and use the hand as if there was nothing unusual about it.

Curling refers to two other cases. The cast of one is to be found in the museum of King's College, and represents a hypertrophic middle finger; of the other, a cast showing the hypertrophied second and third toes of a child, had been shown him by Dr. Little.

The foregoing classification of the cases of giant formation is somewhat arbitrary, necessarily rendered so by the incompleteness of the reports, which in many instances contain no allusion to the progressive development of the hypertrophied part. Busch suggests that in the cases in which the hypertrophied part increased in a higher degree than the rest of the body, there was always found "simultaneous lipomatous degeneration of the adipose tissue;" and in those cases in which the "soft parts enlarged pari passu with the giant formation of the skeleton, the growth of the part advanced only in proportion to the rest of the body." Neither can be accepted as established laws governing these developments, though in a majority of the cases of each group the enlargement is due principally to excessive fat formations.

The object here is not so much to study the relation which

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* Owen, cited by Curling, loc. cit. † Paget, cited by Curling.

the fatty, fibrous, and osseous developments bear to the comparative development of the affected part to the rest of the body, but to ascertain if possible the connection which the arterial, venous, and lymphatic circulation may have with these several forms of hypertrophy. It has been previously suggested that venous stasis stood in direct genetic connection with connective tissue hyperplasia, and lymph stasis with excessive adipose formations; but only in a few anatomical examinations have the arteries been found normal, and in none have they been found enlarged. In a few living subjects excessive development of the arteries was recognized. Cases 35, 36, 37, and probably 38, 42, and 45 are instances of increased nutrition, due manifestly in Cases 35, 36, and 37 to augmented arterial supply; but in Case 42 the arteries and veins were not enlarged, and in Case 45 the pulsations of the digital arteries were so indistinct as to lead to the conclusion that they were inadequate to the ordinary supply of arterial blood. Cases 42 and 45 are curious instances of an hypertrophy affecting equally the skin, nails, muscles, and bones, and yet unaccompanied with any of the circumstances which favor excessive growth. The patient in Case 44, says Curling, exhibited "a feeble constitution; nutriment was sparing; there was no extraordinary exercise of the part; no enlarged vessels, or activity of circulation," and a diminution of the temperature. In Case 38 power was increased, and in No. 1 and a number of others it remained unimpaired. When power is preserved, the muscles are normal, or at most anæmic; when increased, as in 38, the muscles are hypertrophied—this latter condition being found presumably in connection with a superabundant supply of arterial blood and an elevation of temperature. When abolished, or greatly impaired, with or without bone hypertrophy, but not occasioned by bone deformity, the adipose or fibrous degeneration predominates, and atrophy of the muscles, arteries, and nerves has to a greater or less extent ensued. The veins seem to offer greater resistance to the atrophic process than the other soft parts. Thus while normal or augmented nutrition, that is nutrition affecting equally all the parts, follows the general law—one depending upon an adequate and the other receiving an increased supply of nutritive blood, quantitative or qualitative

alterations of nutrition, affecting exclusively the soft parts, or confined to either the adipose or connective tissue, or invading unequally the soft and bony structure, exhibit no uniform condition of the circulatory system. The condition of the arteries shown in Cases 35, 36, 37, 42, and (inferential) in 38, is in marked contrast with the condition found in Cases 39, 41, and 43, in all of which there was bone elongation, but only in the latter instances bone thickness. This fact is, however, insufficient to dissociate augmented arterial supply from bone thickness, for the conditions of bone elongation and thickness are found in simultaneous existence with increased arterial supply.

These observations exhibit great diversity of phenomena and a want of uniformity of anatomical conditions. Enough, however, is shown to establish two facts: 1st. Elongation of a limb, or of a part, may be due either to increased length of the bones, or to the formation of fat cushions on the plantar surface of the foot, or at the ends of the fingers or toes, or both conditions may be concerned in producing the increased length. 2d. Bone thickness is most frequently found in connection with connective tissue hyperplasia, and even when not invading the diaphysis, the epiphyses were nearly always thickened. Lipomatous formations may coëxist upon the flexor and extensor sides, but most usually they attack the flexor aspect, and frequently select localities never invaded by the acquired forms. In my case (No. 1) the elongation of the limb was due to the fat formation on the plantar surface—an additional reason why it should be classed with the cases which develop in excess of the rest of the body.

Excepting the few cases of increased nutrition, in which the soft and bony structures were equally enlarged, no constant modification of the arterial system is shown. Occasionally the arteries are found normal in connection with either lipomatous or fibromatous degeneration; but usually they are very much atrophied, sometimes absent, and never enlarged. Nevertheless, the connection between the supply of arterial blood and analogous alterations of the tissues is established by the results in those cases, of which No. 4 is an example, in which ligation of the main arterial trunk supplying the affected part is followed

by arrest and sometimes by cure of the growth. Venous blood and lymph must, to a certain extent, be regarded as the derivatives of arterial blood, and only so far as it is the source supplying these fluids can it hold any causative connection with the alterations of nutrition which affect unequally the constituent tissues of the hypertrophied part. The transuded serum of venous blood is poorer in nutritive material than lymph, and connective tissue is a lower grade of organization than the adipose. From the fluid plasma all the tissues originate, and lymph is the plasmatic fluid minus the nutriment abstracted by the tissues it has traversed, and plus certain waste products of nutrition. Œdematous fluid consists (Wagner) "in a pathological accumulation of quantitatively and qualitatively changed lymph in the lymphatic radicles" and spaces within the tissues, and "œdematous parts chiefly or wholly consisting of connective tissues" show a separation of the fibres by a fluid "sometimes very poor, sometimes very rich in lymph corpuscles;" its only "essential and constant elements, but in very variable quantity, are lymph corpuscles."* Such accumulations of lymph may

* Mr. Jonathan Hutchinson, in a clinical lecture on certain forms of solid œdema of the legs (London Lancet, August 26, 1876), enumerates seven classes of cases. In the first group he includes all cases of passive dropsy occurring in connection with mere debility; in the second all œdemas due to positive impediment in the heart, and in the third group all œdemas from renal disease. In these forms the œdema is always symmetrical. In the fourth group he includes all cases due to mechanical obstruction to the return venous current, such as pregnancy, abdominal tumors, and compression of the iliac veins. To the fifth group belong all cases where actual disease of the venous trunks is present, in which class it is customary to include phlegmasia dolens, but which Mr. H. thinks is more likely caused by lymphatic than venous obstruction. The sixth group comprises those cases in which the œdema is wholly or chiefly due to lymphatic obstruction. Mr. H. believes that the lymphatic system takes a large and the chief share in the production of œdema, and that the vessels are frequently occluded by inflammatory thickening. In such cases the œdema is non-symmetrical, not always connected with enlarged or devastated glands, and is not easily distinguished from chronic inflammation of the cellular tissue. The direct communication of the lymph vessels with the areolar interspaces affords ample facility for œdematous accumulations. In the last group he includes all cases caused by erysipelatous and elephantoid inflammations, and by thrombosis of the venous capillaries. He cites several cases caused by syphilitic inflammation of the lymphatic vessels.—*Med. News and Library, vol. xxxv, p.* 1, 1877.

result from interruption of the current of the lymph through the lymph channels proper, or from the transudation of the blood serum through the venous radicles in consequence of some impediment to the return current of the blood; in the latter event it would contain the salts, fat, and urea in the same proportion as present in the blood, but the albumen, fibrinogenous substance, and corpuscular elements in much less quantity. In the former case the accumulated fluid would represent the lymph proper, a fluid far richer in the elements of nutrition, though varying, according to the exigencies of nutrition, in the proportion of fat and corpuscles. The fat and connective tissues are in structure the same, the former being distinguished from the latter by the presence of fat in the cells, which, under certain conditions, may again (Virchow) disappear, and the adipose will be reduced to simple connective tissue. Several cases previously cited exhibit various stages of transition of the adipose into connective tissue hypertrophy, and, as a rule, these transitional conditions were only exhibited in cases in which some abnormal condition of the venous system was present. This fact becomes important, and supplies additional evidence in confirmation of the view that the impoverished lymph transudation is the genesis of the connective tissue hyperplasia, though it does not exclude the probability that occasionally, and especially in protracted cases of lymph stasis, caused by impediment to the onward flow of the lymph, similar development may not take place, for the lymph proper may be or become impoverished; too poor in fat, but abundantly rich in the elements essential to the growth of connective tissue.

In this connection I may also cite the cases of Quincke and Weichselbaum.* The first was a case of chylous ascites, the extravasation of the chyle into the walls of the intestines and peritoneal cavity having been caused by the closure of the chyle vessels by inflammatory thickening of both folds of the mesentery, and transformation of the interposed adipose tissue into "tense connective tissue." The chyle vessels were engorged with chyle exactly to the union of the intestines with the mesentery, not injected in the latter; the mesenteric glands were

* New Orleans Med. and Surg. Jour., March and May, 1877, Cases xliii and l.

small and without chyle retention. In Weichselbaum's case there was no extravasation, but stasis of chyle in the chyle vessels of the mesentery and hypertrophy of the interposed adipose tissue of the mesentery. The hypertrophy had assumed the tumorous form, and was thickly interspersed with cavernous spaces, communicating with the chyle capillaries and filled with chyle. The structural changes found in the mesentery, in the cases respectively, were present in connection with opposite conditions of the chyle vessels. The transformation of the adipose tissue into "tense connective tissue" took place in Quincke's case, in which the chyle capillaries were occluded so that none of the fluid could permeate the vessels which traversed the mesentery. In Weichselbaum's case the extraordinary development of the adipose tissue of the mesentery was found in connection with stasis of chyle and its retention in the dilated vessels and cavernous spaces of the mesentery. It can not be asserted that the retention of chyle in the mesenteric vessels, in Weichselbaum's case, was the cause of the excessive adipose formation, nor that its absence from the vessels, in Quincke's case, was the cause of the transformation of the adipose into connective tissue, but the singular juxtaposition of the morbid phenomena justify such a conclusion, and is corroborative of the teaching of cases herein reproduced.

New-formed fatty tissue consists in the increased size or multiplication of the fat cells, or in the transformation of connective tissue corpuscles, and may be diffused or circumscribed. When circumscribed, it not unfrequently assumes the tumorous forms, with regular or lobed surfaces, and divided by partitions of connective tissue into variously shaped masses. These tumors are most frequently located in the subcutaneous tissue, and may be either firm or soft, according as the connective tissue or fatty elements predominate,* or when the vessels are developed in excess may assume the form known as the lipoma teleangiectodes. Lipomatous formations, says Busch, when existing, submit to no limitation of growth, but may increase in proportion to or advance more rapidly than the rest of the body.

* Wagner, Manual of General Pathology.

Fatty atrophy may take place under various conditions—the retrograde change occurring either through serous atrophy of the fat cells, or by multiple division of the nucleus, and formation of young cells which become migratory or connective tissue cells.

Fatty metamorphosis may affect normal tissues or pathological formations, and is invariably the result of disturbance of the circulation and nutrition. The function of the part invaded is either impaired or wholly abolished.

Fatty and connective tissue new-formations are interchangeable conditions—that is, either may succeed to the other. The lipomatous transformation is, however, most frequently found in the areolar form of fibromata, which usually attacks the skin and subcutaneous cellular tissue, and consists of fibrous bundles and spaces filled with a serous fluid. It usually affects the connective tissue corpuscles, but rarely the basis substance. The stellate connective corpuscles of Virchow are the lymph lacunæ of Recklinghausen, and, if not identical with, contain the branched cells of Klein, which constitute a system of anastomosing and communicating tubes and canals—the canalicular system of the body, through which the lymph flows. Klein ("New Orleans Medical and Surgical Journal," Volume IV, p. 327) derives the fat cells of the serous membranes from transformed branch cells, and holds that the nourishment normally provided for the production of lymphoid cells is consumed in the formation of fat cells.

These considerations lead me to the conclusion that the lipomatous and fibromatous formations and degenerations, exhibited in the foregoing cases of giant growth, are the pathological results of a stagnation of lymph—"the non-efflux of the nutritive fluid." This stasis may be occasioned by conditions which affect the lymph channels, or which primarily involve the circulatory apparatus, causing excessive transudation of the blood serum, or both systems may be concerned either proximately or remotely. Under conditions which favor either or both forms of new formation, the process may progress so far as to produce atrophy of all other soft tissues, and, under further conditions favorable to such transformation, either may subordin-

ate the other. These conditions can not be definitely defined, but many circumstances induce me to believe that the transuded blood serum—a fluid comparatively poor in the corpuscular and fat elements—is principally concerned in the genesis of the fibromatous forms, and lymphangiectasis in the lipomatous forms. In support of this view, the following cases may be cited:

Case XLVIII.*—Augusta B., aged ten years. The right leg was nearly as large as the rest of the body, and appeared like the leg of a well-nourished, strong man. The foot was colossal for even such a leg, and the toes were enormously enlarged. The bones of the foot were everywhere enlarged. The color of the leg was a fresh flesh; the foot had a purplish hue. Temperature of leg normal; foot cool. The skin appeared shining; was neither dry nor flaccid; not traversed by ectatic veins nor œdematous, possessing normal resistance, and showed no indications of disease. On the dorsum of the foot a large venous cord coursed longitudinally. The comparative measurements of the legs, as shown in figure 31, were as follows:

	Right.	*Left.*
Circumference of middle of thigh	16 inches.	9½ inches.
" above patella	14¼ "	7 "
" across patella	14 "	8½ "
" around lig. patellæ	13½ "	7 "
" middle of calf	15¼ "	8 "
" above malleoli	10 "	6 "
" of foot, posterior third	18¼ "	6¾ "
" points of little and great toes	18¼ "	5¾ "
" great toe	6¼ "	2¾ "
Length from trochanter to edge of heel	28½ "	21 "
" " edge of heel to point of great toe	11½ "	6½ "

A large lipoma, sharply defined, semi-solid and elastic, covered with normal integuments, occupied the space between the upper halves of the scapulæ; a second one was located between the sixth and ninth dorsal vertebræ, flatter and softer than the other, but measuring more in circumference; a third was situated over the crest of right ilium, measuring six inches anteroposteriorly. The posterior wall of left thorax was stained with a diffuse superficial nævus, and in the centre of the sternum lay a network of varicose cutaneous veins, which extended

* Freiburg, Virch. Archiv, vol. xl, p. 353.

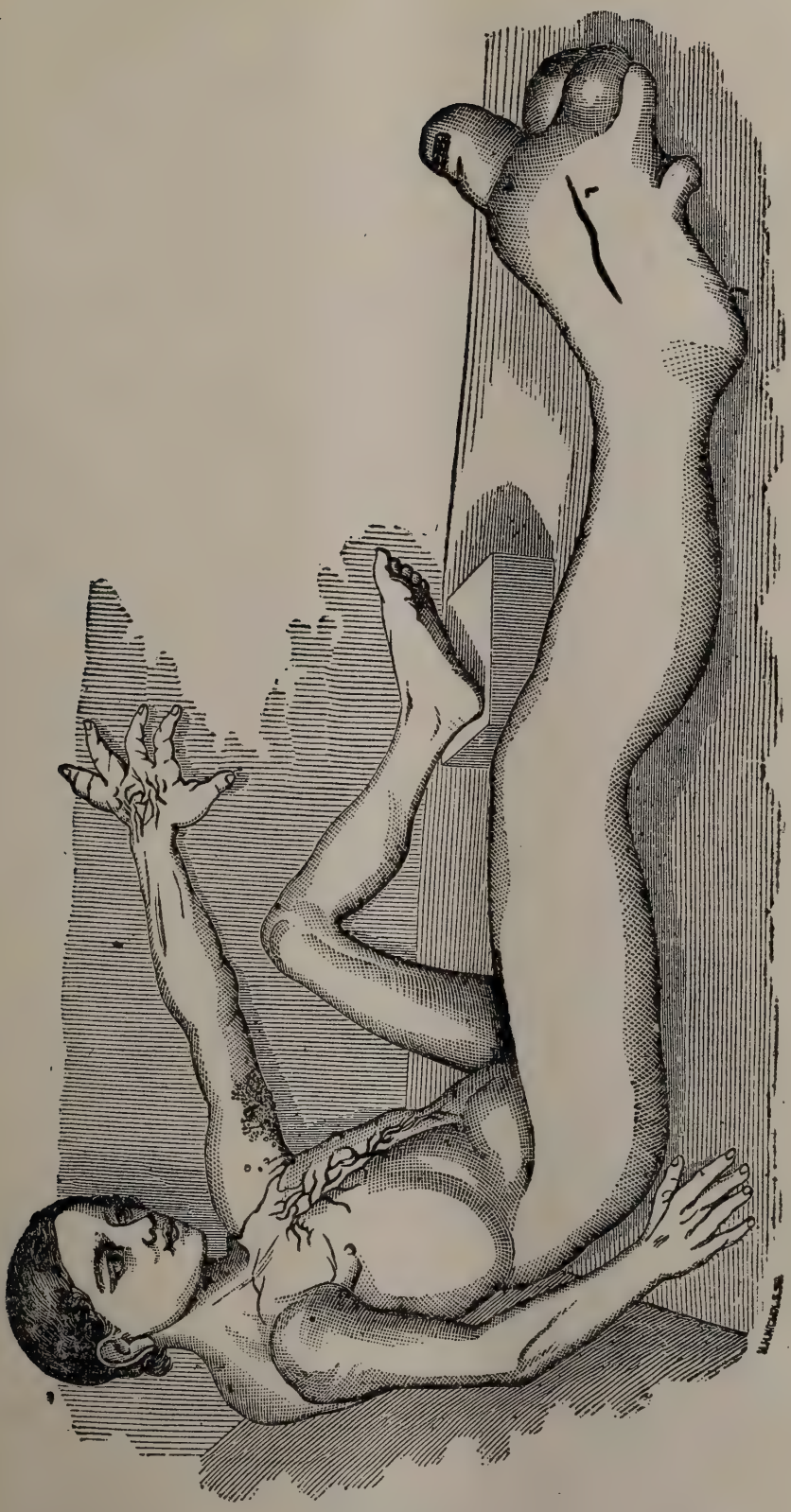


FIGURE 31.

downwards to the umbilicus; a similar one occupied the anterior external side of the left humerus. The lymph glands upon left side of neck and along inferior maxilla were hard, movable tumors, united in strings, and sometimes crowded in groups. Between the left nipple and shoulder were two uneven, small, flat, movable tumors, and in the axilla and upon the inner side of the left arm was a network of hard, nodulated, movable, thin cords, over which the skin was occupied by light yellow colored vesicles, from hemp-seed to bean size. Upon the inner and posterior side of left forearm were S-formed, bead-like rows of small, flat, semi-solid nodules, from hemp-seed to bean size, which were lost in the region of the plica cubita, and extended to the volar side of the wrist-joint; several were movable over the subjacent tissue, but fixed to the skin; they were not fixed and extended into the deeper tissues. Upper third of left forearm measured in circumference eight inches, right seven inches. Left wrist five and a fourth inches, right five and a half inches. The skin over the thickened portion was of a dirty grayish-blue or brownish color. The panniculus of left hand underneath the normally colored skin, traversed by dilated veins, was everywhere hypertrophic and of a semi-fluid softness, with a fatty rugged surface. The left hand was much larger than the right, and not proportionately formed.

These abnormal conditions were observed at birth. The child was otherwise healthy, nursed, grew fast, and walked at eleven months of age. Excepting an attack of sickness during dentition, the child continued well until four years old, when it was seized with a chill, followed by fever, pain and redness of the left thorax and left arm, accompanied with swelling, vesicular formations, lasting about eight days, terminating in resolution, with desquamation of the skin of the affected part. These attacks, which sometimes resembled lymphangitis, and at other times erysipelas, recurred at varying intervals during the succeeding years, sometimes limited to the thorax or arms, and at other times extending over both. During one of these attacks the nævus upon the dorsum of left hand developed, and several times large blood vesicles were formed, which ruptured. After each attack the

FIGURE 32.

part affected remained enlarged and continued to increase in size. The right arm and hand also became involved in these inflammations, and finally both arms and hands grew to the enormous proportions represented in figure 32. During the earlier years of these recurring inflammatory attacks, the enlarged right leg was free from them, but subsequently it became subject to periodic inflammations; nevertheless it continued to grow in all its dimensions from birth to her death, which took place in her tenth year, of phthisis pulmonalis. No autopsy.

Case XLIX.*—J. C. D., aged seven years; healthy. When two and a half years old, the enlargement of the leg, which did not extend above the knee, and was most apparent above the ankle and on the inner and front aspect of the tibia, was first observed. The skin was normal, only tightly expanded over the tissues beneath, which was always increased by standing or walking. The limb gradually enlarged, and the tumefaction extended upwards, involving the entire thigh, until it measured as follows:

Upper third of thigh	16 inches.
Middle of thigh	15½ "
Knee-joint	13 "
Below knee	12 "
Calf	11 "
Lower third of leg	11 "
Above ankle-joint	7¾ "
Instep	9 "
Base of toes	6½ "

When the system was out of order, the leg always enlarged. During the period of growth, herpetic spots appeared at various times on the leg, foot, and scrotum, and, when the leg had reached its largest development, a small, pearly-looking vesicle appeared on the upper part of the penis, which finally ruptured and discharged from time to time a milky-looking fluid, which exhibited the following characteristics: Faint sickening odor, salt-like taste, alkaline reäction. There was no uniformity in rapidity of coägulation. The clot bore the closest resemblance to that of blood, except being softer and destitute of red corpuscles. It contained a large quantity of fatty matter and

* Day, Trans. Clin. Soc., Lond., vol. ii, p. 104, 1869.

fibrin, a molecular base-like chyle, and numerous pale cells resembling white blood corpuscles.

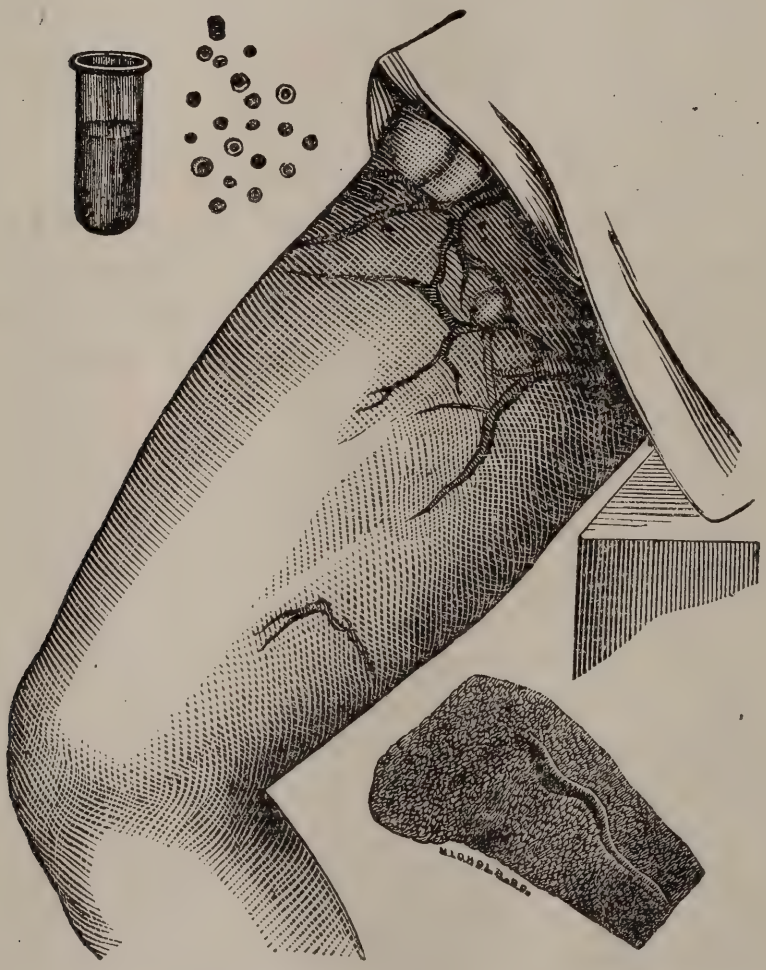
A patch of yellowish-white vesicles, seeming to contain a cheesy matter, appeared on the upper part of the leg, and, subsequent to the rupture of the vesicle on the penis, a cluster of similar vesicles appeared on the dorsum of the foot. The discharge was always followed by reduction in the size of the limb, and was sometimes so copious as to produce great debility, confining him to bed. Occasionally, after the disease had continued for several years, he was subject to attacks of inflammation limited to parts of the affected limb, which was attended with high fever, loss of appetite, burning pain, and redness of the part. Finally, in consequence of the recurring discharges, his general health became seriously impaired, characterized by great weakness and prostration. Sometimes the discharge in the beginning was pure lymph, changing, after it had continued for a while, into a chylous fluid, exhibiting the characters before described.

Case L.*—M. X., aged seventeen. Health always good. On the 9th of March, 1852, while playing, he noticed that a liquid, at first colorless, but soon acquiring a milky tinge, was flowing from a definitely located spot on the inner and lower part of the left thigh, where were found, after careful examination, very small elevations in considerable number, and depressible. Some days after, M. Demarquay observed the liquid at first almost colorless, with a slightly muddy tint, and passing to a yellowish-white, jetting with considerable force from little granulations situated upon and around an elevation, three or four centimetres in extent, depressible, and like a varix, extending in a slight curved line from the anterior to the inner part of the thigh, as shown in figure 33. This elevation became more evident upon walking, and diminished with rest. Several discharges took place during the following six months, and on November 1st one occurred which lasted nine hours. A portion of this was collected in a vessel, and soon coägulated like blood. In the centre of the mass a clot formed which appeared composed of a series of reddish filaments swimming in the midst of

* Demarquay, Mém. de la Soc. de Chir. de Paris, Tom. iii, p. 139.

an abundant serum. M. Lebert declared the fluid to be lymph. Subsequent to this the varix increased in volume, and the little granulations, before described, became transparent vesicles, which when pricked discharged copiously a similar fluid. Another series of vesicles appeared on the anterior surface of the same thigh, and in the groin there was a small venous varix. The affected thigh increased in size in excess of the sound limb.

FIGURE 33.



In this case there was dilatation of a lymphatic vessel, and also of the superficial network, in two well-defined points of the thigh. The boy continued to lose large quantities of lymph without any impairment of his general health. Compression above and below the point from which the lymph flowed gave rise to a jet of appreciable duration; pressure below did not arrest the flow.

Case LI*.—A female infant, weighing seven pounds. Right leg twice the size of the left, surface slightly purplish, with here and there a bluish tinge. The whole limb, from Poupart's ligament in front, and around by the crest of the ilium behind, down to the toes, was one mass of twisted and contorted varices. The vermicular prominences rolled round and round the leg in a singular manner, as represented in figure 34.

Fig. 34.

Motion was perfect, though obviously painful. The transpiration from the limb was so abundant and exhaustive that the child grew weak from day to day. On the fifth day large blebs appeared on each side of the ankle, and the color and general appearance changed; it became darker; the copious transudation continued; the exhaustion increased, and death took place on the ninth day after birth.

Examination of the limb proved the varicose prominences to be enlarged lymphatics, filled to distension with a milky, serous fluid. From their abrupt beginning in front, around the buttock and down the limb the lymphatics were twisted, corded, and rolled together. Around the crest of the ilium and along the course of Poupart's ligament the tissues were condensed, resembling tight bands stretched. There was no appearance of

* Paterson, Edinburgh Med. Jour., vol. xvi, p. 1012.

glandular or other structures. The muscles, glands, blood-vessels, etc., beneath were natural, and no distended lymphatics could be discovered in the deep tissues. The tissues from the iliac crest to the pubis seemed like a mass of hardened cellular tissue. No anastomotic connection between the superficial and deep-seated lymphatics could be discovered.—*Amer. Jour. of Obstetrics.*

ART. II.—*Address in Medicine — The Doctrine of Contagium Vivum and its Applications to Medicine.* By WILLIAM ROBERTS, M. D., F. R. S., Physician to the Manchester Royal Infirmary; Professor of Clinical Medicine in Owens College, etc., etc.

Gentlemen,—The notion that contagious diseases are produced by minute organisms has prevailed in a vague way from a remote age; but it is only within the last twenty years—since the publication of Pasteur's researches on fermentation and putrefaction—that it has assumed the position of a serious pathological doctrine. In the last decade startling discoveries of organisms in the blood have given this doctrine the support of actual observation; and its application as a guide in the treatment of wounds by Professor Lister has made it a subject of universal interest to medical practitioners.

The resemblance between a contagious fever and the action of yeast in fermentation, or the action of bacteria in decomposition, is in many points so striking that it is difficult to avoid the impression that there is some real analogy between them. If, for example, we compare the action of yeast with small-pox, this resemblance comes out very distinctly, as the following experiment will show. I filled two pint bottles, A and B, with fresh saccharine urine, and inserted a delicate thermometer in each. A was inoculated with a minute quantity of yeast, but nothing was added to B. Both bottles were then placed in a warm place in my room, at a temperature of about 70 degrees Fahr. In order to get a correct standard of temperature for comparison, I placed beside these a third bottle, C, filled with water, and inserted a delicate thermometer in it. All these

bottles were carefully swathed in cotton wadding, for the purpose of isolating their individual temperatures, and to obviate as much as possible the disturbing effects of the varying temperature of the room. For twelve hours no change took place; but at the end of this time A began to ferment, and the thermometer marked a distinct elevation of temperature. On the second day A was in full fermentation, and its temperature was 2.7 deg. above B and C. This disturbance continued for five days, the temperature ranging from two to three degrees above the companion bottles. The disturbance then subsided, and the temperature fell to an equality with B and C, and a considerable sediment, composed of yeast, settled at the bottom. In the meanwhile B showed little alteration; but on the sixth day it began to ferment; the temperature went up, and for more than a week its thermometer stood about two degrees above A and C. Finally the temperature in B declined, the disturbance subsided, and the newly-formed yeast settled to the bottom of the vessel.

This fever in a bottle resembled small-pox in the following points: A period of incubation intervened between inoculation and the commencement of disturbance; then followed a period of disturbance accompanied by elevation of temperature; this was succeeded by a subsidence of the disturbance and a return to the normal state. Great multiplication of the infective material (or yeast) took place during the process, and after its conclusion the liquid was protected from further infection with the same contagium. We likewise notice that the contagium of fermentation, like that of small-pox, may take effect either by direct purposive inoculation or by fortuitous infection through the atmosphere. In both cases the infective material has the power of preserving its activity for an indefinite period. The comparison fails in at least one important point—in the fermented urine sugar is replaced by alcohol and carbonic acid; but we are not aware that any pronounced chemical changes occur in the blood or tissues during an attack of small-pox. I would moreover carefully guard myself against being supposed to suggest that the enhanced temperature in the fermenting urine is a real analogue of the preternatural heat of fever.

Let me direct your attention to another example—a kind of partial decomposition or fermentation which takes place in boiled hay infusion when it is inoculated with the *Bacillus subtilis*. The *Bacillus subtilis* is a very common bacterium found in vegetable infusions and in curdling milk. I hope you will take note of this little organism; for I shall have to refer to it more than once in the course of this address. I took a flask containing hay infusion, which had been sterilized by boiling, and inoculated it with a drop of fluid swarming with *Bacillus subtilis*. After the lapse of twenty-four hours, the previously transparent infusion became turbid. This turbidity increased, and on the second day a film or crust formed on the surface of the infusion. On the third and subsequent days the crust broke up and fell in pieces to the bottom of the vessel. In about a fortnight the turbidity passed away, and the original transparency of the infusion was perfectly restored, so that it looked exactly as it did before the process began, except that there was now a sediment consisting of the spores of the little organism at the bottom of the flask. In this case again there was the same succession of events; a period of incubation, followed by a period of disturbance, succeeded by a period of subsidence, and finally restoration to the normal state. There was also great increase of the infective material and immunity from further attack by the same contagium.

The yeast plant and the *Bacillus subtilis* may be taken as representatives of a large class of organisms in regard to which we are only beginning to realize their vast importance in the economy of Nature and in the life of man. They are, as I shall presently show, the essential agents in all fermentations, decompositions, and putrefactions. We may group them together for the convenience of description under the general designation of a *saprophytes*, a term intended to include under one heading all the organisms associated with the decomposition and decay of organic matter. The yeast plant and its allies, and all the numerous species and varieties of bacteria, belong to this group. In size and form they are among the smallest and simplest of living things, but their vital endowments are wonderful.

All the organisms hitherto found associated with infective

inflammations and contagious fevers belong to the tribe of bacteria, and we can not advantageously enter on a study of that association without a knowledge of the origin and attributes of these organisms. This brings us into a field of active controversy. It has been alleged, as you know on high authority, that these organisms, under certain conditions, depart entirely from the universal law of generation, which is expressed in the aphorism "omne vivum e vivo," and that they may arise spontaneously by a process of abiogenesis. It is also alleged that these organisms are not the actual agents of decomposition, but are merely associated with that process as secondary or accidental accompaniments. I propose to lay before you evidence that both these allegations are unsustainable, and to prove that bacteria, like other organisms, arise from preëxisting parent germs, and in no other way, and that they are the actual agents in all decomposition and putrefaction.

The first proposition I shall endeavor to establish is this: That organic matter has no inherent power of generating bacteria, and no inherent power of passing into decomposition.

I have here placed before you samples of three sets of preparations out of a large number in my possession, which serve to substantiate this proposition.

The first set consists of organic liquids and mixtures which have been rendered sterile by a sufficiently prolonged application of the heat of boiling water. They are composed of infusions of vegetable and animal substances, fragments of meat, fish, albumen, and vegetables floating in water. They are contained in oblong glass bulbs, and are protected from the dust of the air by a plug of cotton-wool inserted into the necks of the bulbs, but freely open to its gaseous elements which pass in and out through the cotton-wool. They are all, as you see, perfectly transparent and unchanged, though most of them have been in my possession for several years.

The second set consists of organic liquids which have been simply filtered under pressure through unglazed earthenware into sterilized flasks. They include acid and neutralized urine, albuminous urine, diluted blood, infusions of meat and of hay. As these preparations were obtained by a method which is in

some respects new, I will describe it to you. A piece of common tobacco-pipe, about six inches long, served as the filter. This was secured by India-rubber piping to the exit-tube of one of the little flasks used by chemists for fractional distillation. The flask is first charged with distilled water, and then a tight plug of cotton-wool is inserted into its neck. The flask is next set to boiling briskly over a lamp. The steam rushes through the cotton-wool plug and through the tobacco-pipe, clearing both these passages of any germs they might contain. When the water has nearly boiled away, the end of the tobacco-pipe is hermetically sealed with melted sealing-wax. After a little more boiling, the flame is withdrawn and the neck of the flask is instantly closed with a tight vulcanite cork. The apparatus is now ready for action, and the tobacco-pipe is immersed in the liquid to be filtered. When the flask cools, a vacuum is created within it, and this serves as a soliciting force to draw the liquid through the earthenware into the flask. The process of filtration is very slow; it takes two or three days to charge the flask. When a sufficiency has come over the apparatus is removed and placed on a shelf for a few days until the pressure inside and outside the flask is equalized. The vulcanite cork is then withdrawn, and the exit-tube is separated and sealed in the flame of a lamp. In this way you obtain a sterilized flask charged with the filtered organic liquid, and protected from outside contamination by a plug of cotton-wool. Preparations obtained in this way, if due precaution has been used in the manipulation, remain permanently unchanged; organisms do not appear in them, and decomposition does not ensue.

The third set of preparations are in some respects the most significant of the three. They consist of organic liquids which have been simply removed from the interior of the living body and transferred, without extraneous contamination, into purified glass vessels. I will not detain you with the methods employed to obtain them; it is sufficient to say that, by the use of proper precautions, it is possible to convey blood, pus, urine, ascitic fluid, pleuritic effusion, blister serum, or the contents of an egg, into sterilized glass vessels without contact with any infecting agency. Preparations thus obtained are exhibited in these flasks;

they are protected from air-dust by a simple covering of cotton-wool. All of them are absolutely free from organisms and from any signs of decomposition.

What meaning can we attach to these preparations? You all know that liquids and mixtures such as these speedily decompose and swarm with organisms when left to themselves and exposed to the air. They are of most varied composition, and the most apt of all known substances to breed bacteria and to become decomposed. They have been exposed to the most favorable conditions in regard to warmth, moisture, and air. Many of them have been in my possession several years, and all of them for several months, yet they are wholly barren and without sign of decomposition. I venture to say that these preparations substantiate in a positive manner the proposition with which we started; namely, *that organic matter has no inherent power of generating bacteria and no inherent power of passing into decomposition.*

A second proposition is likewise established by these preparations; namely, *that bacteria are the actual agents of decomposition.*

In all the preparations the absence of bacteria coïncides with the absence of decomposition. If I were to cause bacteria to appear in them either by purposive infection or by exposing them to the unfiltered air, decomposition would infallibly follow. The filtration experiments supply a new and telling argument on this point. Some of the liquids became decomposed and full of bacteria while the filtration was going on, but the part which came over into the flasks remained without further change, showing that decomposition can not go on without the actual contact of the living organisms.

We have next to ask ourselves what are the sources and what is the nature of the fecundating influence which causes organic liquids, when abandoned to themselves without protection, to become peopled with organisms. In regard to their source, the answer is not doubtful. If I remove the covering of cotton-wool from any of these preparations, and admit unfiltered air, or a few drops of any ordinary water, however pure, or anything that has been in contact with air or water, organisms make their

appearance infallibly in a few hours. As to the nature of the infective agents, we can say positively that they must consist of solid particles, otherwise they could not be separated by filtration through cotton-wool and porous earthenware. Is it not a most natural inference that they are the parent germs of the brood which springs up at their impact? They are, however, so minute that we can not identify them as such under the microscope; but Professor Tyndall has demonstrated that air which is optically pure—that is, air which is free from particles —has no fecundating power.

It is contended in some quarters that these particles are not living germs of any sort, but simply particles of albuminoid matter in a state of change which, when they fall into an organic liquid, communicate to it their own molecular movement, like particles of a soluble ferment, and so produce decomposition which, in its turn, provides the conditions necessary for the abiogenic generation of bacteria. Filtration through porous earthenware furnishes a complete answer to this theory; for I found on trial that the soluble ferments passed with ease through the porous earthenware. If, therefore, this theory were true, the filtered liquids, if already commencing to be decomposed, would go on decomposing, and would develop bacteria after filtration; but instead of that they remain unchanged and barren. We are absolutely driven to the conclusion that these particles are living germs—no other hypothesis squares in the least degree with the facts of the case.

We may formulate this conclusion in a third proposition as follows: *The organisms which appear as if spontaneously in decomposing fluids owe their origin exclusively to parent germs derived from the surrounding media.*

But how, you will ask, has it been possible, in the face of this evidence, to maintain, with a show of success, the contrary opinion that bacteria can and do, exceptionally at least and in certain media, arise spontaneously. This opinion is based on two undoubted facts, which, taken together, seem at first sight to stand in direct contradiction with the propositions I have enunciated. The first fact is that bacteria are invariably killed when exposed to a temperature of about 140 deg. F., or any

higher temperature. The other fact is that certain liquids, such as neutralized hay infusion and milk, often produce bacteria after having been boiled—sometimes after having been boiled for two or three hours—and when there was no possibility of subsequent infection. It seemed at first sight a fair inference from these two facts that the apparition of organisms in boiled liquids was due to spontaneous generation or abiogenesis. It does seem difficult to believe that any living thing can survive a boiling heat for several hours, and yet such is undoubtedly the truth. When I published on this question in 1874, I advanced more than one line of proof, which appeared conclusive that germinal particles of some sort did, under certain circumstances, survive a boiling heat; and that the instances referred to were examples of such survival, and not of a *de novo* generation. But I was not then able to explain the apparent contradiction involved in these experiments.

Since then, a new and surprising light has been thrown on this subject by the researches of Professor Cohn, of Breslau, and we are now in a position to offer a complete solution of the riddle. All the confusion has arisen from our having failed to distinguish between the growing organism and its seed or spore. You are all familiar with the immense difference in vital endurance between the seed and the growing plant. The same difference exists between a spore and its offspring. Some spores have an extraordinary power of resisting heat. Mr. Dallinger and Dr. Drysdale, in the course of their inquiries into the life-history of septic monads, demonstrated that while the living monads are killed by a heat of 140 deg. F., the spores of one variety, which are so minute that they can not be seen, except in mass, by the highest powers of the microscope, are capable of germinating after being subjected to a heat of 300 deg. F. for ten minutes! If the spores of monads can resist this tremendous heat, there is no reason why the spores of bacteria should not be able to survive the feebler heat of boiling water. The development of bacteria in hay infusion, after having been boiled continuously for several hours in hermetically sealed vessels, seemed to furnish the very strongest attainable evidence in favor of the abiogenic origin of these organisms; and yet, by a singular

fatality, the investigations of Cohn have shown that this evidence, rightly interpreted, supplies a crowning argument against that view.

Cohn had the curiosity to examine the organisms which arose under these extraordinary circumstances. Did he find a new birth? On the contrary, he recognized a familiar form—none other than our old acquaintance the *Bacillus subtilis*. He followed it through all the stages of its development. It first appeared some twenty-four hours after the boiling, in the form of innumerable short moving rods. On the second day these rods shot out into long threads; on the third day there appeared on the threads, at perfectly regular intervals, strongly refractive oval bodies, which he identified as spores. Finally the threads broke down and the spores were set free. In many hundred observations he saw this one organism and no other, and witnessed the successive stages of its development occurring with the constancy of a physical experiment.

Now let me ask if this looks like an act of abiogenesis. The evolutionist demands, for the transformation of one organic type into its next descendant, myriads of generations, and I know not what lapse of ages. But here, if this be a case of abiogenesis, we see accomplished at one leap in a single generation and in seventy hours, not merely the bridging over of the gulf between the dead and the living, but the development of a specifically distinct organism, with definite form, dimensions, and mode of growth, and furnished with a complete provision for the reproduction of the species! I need scarcely say that such a feat would be not only without parallel in the history of evolution, but would be wholly contradictory to that theory.

The only group of bacteria, so far as is known, which form spores are the *Bacilli;* and Cohn remarks that in all the various cases in which he had observed organisms to arise in boiled liquids, they belonged in every instance to the *Bacilli.*

Before leaving this part of my subject, I wish to suggest certain considerations in regard to the nutrition and function of saprophytes, which appear to me to render it in the highest degree improbable that spontaneous generation should ever be discovered in this quarter. If it be assumed that the occurrence

of abiogenesis, at some time in the past history of the globe, is a necessary postulate in science, and I see nothing unscientific —looking to the law of continuity in the operations of nature— in the supposition, this is occurring at the present day somewhere or other on the earth's surface, but certainly not in decomposing liquids.

Saprophytes are, as is well known, destitute of chlorophyll, and, like all such plants, they are unable to assimilate carbonic acid. They obtain their carbon exclusively from more complex compounds which have been prepared for them by pre-existing living beings. It is, therefore, manifestly impossible that the primordial forms of life could have belonged to this group; for if we throw ourselves back in imagination to that remote era when life first appeared on the globe, we should find ourselves in a purely inorganic world—amid conditions in which saprophytes could not possibly live nor obtain nourishment. The special function of saprophytes in the order of nature is to destroy, not to create, organic matter; and they constitute the last, not the first, link in the biological chain. For if we regard the order of life as it now proceeds on the earth's surface, we may describe it as beginning with the chlorophyll body, and ending with the saprophyte. The chlorophyll body is the only known form of protoplasm which obtains all its nutriment from inorganic sources; here integration is at its maximum, and disintegration at its minimum, and the resultant of the nutritive operations is increase of organic matter. The saprophyte, on the contrary, feeds on nutriment prepared for it by other beings; here integration is at its minimum, and disintegration at its maximum, and the resultant of the nutritive process is decrease of organic matter. What takes place in a decomposing liquid, under the action of saprophytes, is progressive disintegration, and finally a breaking up of all the organic compounds it contains into carbonic acid and ammonia; and the process ends with the mutual destruction of the organisms themselves. Organisms could not, therefore, begin in this way. The primordial protoplasm must have been either the chlorophyll body itself, or a body having a similar mode of nutrition.

If the search for contemporary abiogenesis is to be continued,

as doubtless it must be, for science is insatiable, it appears to me that the inquirer should endeavor to realize the conditions under which abiogenesis must have occurred in the first instance. For, if the process be going on amongst us at this day, it may be assumed as probable that it still proceeds on the original lines laid down at the dawn of life. If ever I should be privileged to witness an abiogenic birth, I should certainly not expect to see a saprophyte; I should rather expect to see a speck of protoplasm slowly formed, without definite shape or dimensions, and nourishing itself, like the chlorophyll body, on a purely mineral diet. The more one reflects on this subject, the more clearly does it appear that the spontaneous origin of saprophytes is logically impossible. Speaking as an evolutionist, I should rather infer that saprophytes were a late development; probably a degradation from some algal forms which had found their profit in feeding on waste organic matter, and which gradually lost their chlorophyll through want of use, and with it their power of feeding on an exclusively mineral diet.

We now approach the more practical side of our subject—that which concerns us as practitioners of medicine and students of pathology. I have already directed your attention to the analogy between the action of an organized ferment and a contagious fever. The analogy is probably real, in so far at least that it leads us to the inference that contagium, like a ferment, is something that is alive. We know of nothing in all our experience that exhibits the phenomena of growth and self-propagation except a thing possessed of life.

This living something can only be one of two things; either it is an independent organism (a parasite) multiplying within the body or on its surface, or it is a morbid cell or mass of protoplasm detached from the diseased body and engrafted on the healthy body. Possibly both these conceptions may have their application in the explanation of different types of infective diseases. In regard to the latter conception, however, the graft theory, which has been so ably developed by my friend Dr. Ross, I will only say that it has not, as yet, emerged from the region of pure speculation. It lacks an established instance or prototype; and it fails to account for the long-enduring dormant

vitality so characteristic of many contagia, which conforms so exactly with the persistent latent vitality of seeds or spores, but which contrasts strongly with the fugitive vitality of detached protoplasm.

If, then, the doctrine of a contagium vivum be true, we are almost forced to the conclusion that a contagium consists (at least in the immense majority of cases) of an independent organism or parasite, and it is in this sense alone that I shall consider the doctrine.

It is no part of my purpose, even if I had the time, to give an account of the present state of knowledge on this question in regard to every contagious disease. My object is to establish the doctrine as a true doctrine; to produce evidence that it is undoubtedly true in regard to some infective inflammations and some contagious fevers. In an argument of this kind it is of capital importance to get hold of an authentic instance; because it is more than probable—looking to the general analogy between them—that all infective diseases conform in some fashion to one fundamental type. If septic bacteria are the cause of septicæmia—if the spirilla are the cause of relapsing fever—if the *Bacillus anthracis* is the cause of splenic fever—the inference is almost irresistible that other analogous organisms are the cause of other infective inflammations and of other specific fevers.

I shall confine my observations to the three diseases just named: Septicæmia, relapsing fever, and splenic fever; merely remarking that in regard to vaccinia, small-pox, sheep-pox, diphtheria, erysipelas, and glanders, the virus of these has been proved to consist of minute particles having the character of micrococci; and that, in regard to typhus, scarlet fever, measles, and the rest of the contagious fevers, their connection with pathogenic organisms is as yet a matter of pure inference.

Septicæmia.—We will first inquire how it stands with this doctrine in regard to traumatic septicæmia and pyæmia. You are all aware that foul ill-conditioned wounds are attended with severe, often fatal, symptoms, consisting essentially of fever of a remittent type, tending to run on to the formation of embolic inflammations and secondary abscesses.

The notion that septicæmia is produced by bacteria, and the *rationale* of the antiseptic treatment which is based thereupon, is founded on the following series of considerations.

1. It is known that decomposing animal substances—blood, muscle, and pus—develop, at an early stage of the process, a virulent poison, which, when injected into the body of an animal, produces symptoms similar to those of clinical septicæmia. This poison is evidently not itself an organism; it is soluble, or at least diffusible, in water, and it is capable, by appropriate means, of being separated from the decomposing liquid and its contained organisms. When thus isolated it behaves like any other chemical poison; its effects are proportionate to the dose, and it has not the least power of self-multiplication in the body. To this substance Dr. Burdon Sanderson has given the appropriate name of pyrogen. It is the only known substance which produces a simple uncomplicated paroxysm of fever—beginning with a rigor, followed by a rise of temperature, and ending (if the dose be not too large) in defervescence and recovery.

2. We know further, from the evidence I have laid before you, that decomposition can not take place without bacteria, and that bacteria are never produced spontaneously, but originate invariably from germs derived from the surrounding media. We are warranted by analogy in regarding pyrogen as the product of a special fermentation taking place in decomposing albuminoid mixtures, but we can not name the particular organism nor the particular albuminoid compound which are mutually engaged in the process.

3. In the third place, we know that when a wound becomes unhealthy, as surgeons term it, the discharge becomes offensive —in other words, decomposed—and when examined under the microscope they are found to swarm with organisms resembling those found in all decomposing fluids. Meanwhile the patient becomes feverish, and suffers from the train of symptoms which we call septicæmia.

It is a natural inference that what takes place in decomposing blood or muscle in the laboratory takes place also in the serous discharges and dead tissues of the wound. These become infected from the surrounding air, or from the water used in the

dressings, with septic organisms; on that follows decomposition and the production of the septic poison, or pyrogen; the poison is absorbed into the blood, and septicæmia ensues.

It was the distinguished merit of Lister to perceive that these considerations pointed to a means of preventing septicæmia. He argued that if you could prevent the access of septic organisms to the wound, or destroy them there, you would prevent decomposition, prevent the production of the septic poison, and thus obviate the danger of septicæmia. It is not within the scope of this address to describe the means by which Lister attained this object, still less to pass judgment on his practice; but I may be permitted to express my belief that the principle on which the treatment is founded is unassailable.

We should probably differ less about the antiseptic treatment if we took a broader view of its principle. We are apt to confound the principle of the treatment with Lister's method of carrying it out. The essence of the principle, it appears to me, is not exactly to protect the wound from the septic organisms, but *to defend the patient against the septic poison.* Defined in this way, I believe that every successful method of treating wounds will be found to conform to the antiseptic principle, and that herein lies the secret of the favorable results of modes of treatment which at first sight appear to be in contradiction to the antiseptic principle. Take, for example, the open method of treating wounds which is sometimes compared in its results with Lister's method. What is this treatment but another way (only less ideally perfect than Lister's) of defending the patient against the septic poison? Because, if the surgeon succeeds in providing such free exit for the discharges that there is no lodgment of them in the wound, either they pass out of it before there is time for the production of the septic poison, or if any be produced, it escapes so quickly that there is not enough absorbed to provoke an appreciable toxic effect.

Before we can understand the pathology of septicæmia we must have clear ideas on the relation of septic bacteria to our bodies. We see in our laboratories that dead animal tissues, when exposed to ordinary air or ordinary water, invariably breed septic organisms; in other words, contact of the septic

germs with the dead tissues never fails to produce successful septic inoculation. But it is quite otherwise with the same tissues when alive and forming part of our bodies. You can not successfully inoculate the healthy tissues with septic bacteria. It has been proved over and over again that these organisms, when separated from the decomposing medium in which they grow, can be injected in quantity into the blood or tissues of a healthy animal, or applied to a sore on its skin, without producing the least effect. The healthy living tissues are an unsuitable soil for them; they can not grow in it; or, to put it in another way, ordinary septic bacteria are not parasitic on the living tissues.

This fact is of fundamental importance in the discussion of the pathology of septicæmia. We have a familiar illustration of its truth in the now common practice of subcutaneous injection. Every time you make a subcutaneous injection you inject septic germs into the tissues. I had the curiosity to test this point with the morphia solution used for this purpose in the Manchester Infirmary. I injected five drops of this solution into four flasks of sterilized beef-tea which had remained unchanged in my room for several months, taking care to avoid any other source of contamination. In forty-eight hours they were all in full putrefaction. But we know that no such effect follows when similar injections are made into the bodies of our patients.

It seems also probable that septic organisms enter constantly into our bodies with the air we breathe and the food we take; they pass, presumably, like any other minute particles, through the open mouths of the lymphatics and lacteals, and penetrate some distance into these channels; they certainly come in contact with the accidental cuts, sores, and scratches which so often bedeck our skins. Notwithstanding all this, our bodies do not decompose; indeed, if ordinary septic organisms could breed in the living tissues as they do in the same tissues when dead, animal life would be impossible, every living creature would infallibly perish. How these organisms are disposed of when they do enter our bodies accidentally, as it were, in the various ways I have suggested, we can not say; we can only suppose

that they must speedily perish, for we find no traces of them in the healthy blood and healthy tissues.*

Bearing in mind, then, that ordinary septic organisms can not breed in the living tissues, unless, at least, they are reduced to near the moribund state; bearing also in mind that there is a sharp distinction to be drawn between the septic poison and the organisms which generate it, we are in a better position to consider the course of events in a wound, which leads on to septicæmia and pyæmia. What probably takes place is this: An unprotected wound receives infection from the septic organisms of the surrounding media. If the discharges are retained in the sinuosities of the wound, decomposition of them sets in with production of the septic poison. This is absorbed into the blood, a toxic effect follows, and septicæmia is established. As this effect increases with the continuous absorption of the poison, the vitality of the system is progressively lowered, and especially the vitality of the tissues bordering the wound, which may be topically affected by the poison which percolates through them. These tissues at length become moribund or die outright; the septic organisms then invade and breed in them, more septic poison is produced and absorbed; the toxæmia becomes intense, embolic centres of inflammation and suppuration are formed, and the end comes. In all this history there is no necessity to assume, nor even a probability, that septic organisms invade or at least multiply in the blood. They may do so at the near approach of death, but scarcely before that period.

In the course of traumatic septicæmia there sometimes occurs an event of great importance which imparts a new feature to the disease; I mean *infectiveness*. How this arises is a matter of speculation. To me it appears probable that, under a certain concurrence of conditions in and about the wound, a modification takes place in the vital endowments of the septic organism,

* Exception must apparently be made in regard to the tissues and organs in the immediate vicinity of the absorbent surfaces. Both Klebs and Burdon Sanderson found that portions of the liver and kidneys removed from the body without extraneous contamination, produced bacteria, contrasting in this respect with the blood and muscles.—*British Medical Journal*, February 13th, 1875.

whereby it acquires a parasitic habit, which enables it to breed in tissues of degraded vitality or even in the healthy tissues, and in this way to produce the infective endemic pyæmia which we sometimes witness in the wards of our large hospitals.* I shall develop this idea more fully by and by.

Before leaving the subject of septicæmia, I may allude to the possibility of wounds being infected with septic organisms from within. As a rare occurrence, I am inclined to think that this is possible, and that it may account for the occasional alleged infection of protected wounds. From an observation by Chauveau, it may be inferred that septic organisms, when injected directly into the blood, are able to survive for two or three days, although unable to breed there.† It is conceivable that occasionally a septic germ entering the body in some of the ways which have been suggested may escape destruction and pass into the blood and lurk there awhile, and finding by chance some dead tissue or liquid within its reach, may multiply therein and produce septic effects. Such a contingency, if it ever occur, must be very rare, and would not appreciably detract from the value of the antiseptic mode of dressing wounds.

Relapsing Fever.—In 1872, Dr. Obermeier, of Berlin, discovered minute spiral organisms (spirilla) in the blood of patients suffering from relapsing fever. This discovery has been fully confirmed by subsequent observations. The organisms are found during the paroxysms; they disappear at the crisis, and are absent during the apyrexial periods.

The drawings represent the various appearances presented by these little parasites. They consist of spiral fibrils of the most extreme tenuity, varying in length from two to six times the breadth of a blood corpuscle. In the fresh state they move about actively in the blood. They have not been detected in any of the fluids or secretions of the body except the blood, nor in

* Such a modification or "variation" might be correlated with a modification of the ferment action, whereby a more virulent septic poison is produced. Would not such a view explain the sudden intensification of the infecting virus which was found by Chauveau and Dr. Sanderson in their experiments on infective inflammations?

† Comtes Rendus, 1873, p. 1092.

any other disease than relapsing fever. In form and botanical characters they are almost identical with *Spirochaete plicatilis* of Ehrenberg (*Spirillum* of Dujardin) a species of bacteria found in dirty water and occasionally in the mucus of the mouth. Cohn designated the variety found in the blood *S. Obermeieri*, in honor of its discoverer.

In the beginning of the current year, Dr. Heydenreich,* of St. Petersburg, published an elaborate monograph on this subject, which, I think, goes far to reconcile the conflicting statements and opinions put forth by previous writers in regard to the connection of the spirilla with relapsing fever. It is based on forty-six cases; these cases were studied with the most minute care; the blood was examined, and the temperature observed from two to six times each day. Altogether, over a thousand examinations of the blood were made.

Relapsing fever still prevails extensively in certain districts of Germany and Russia, but it is almost a forgotten disease in this country; and probably the majority of those in this room have never seen a case. It will therefore not be amiss if I remind my hearers and myself of its principal features. It is a contagious epidemic fever characterized by a sharp paroxysm of pyrexia, which lasts about a week, and ends with a severe critical sweating. This is succeeded by an intermission, also of about a week, during which the patient is apyrexial; then follows a second paroxysm or relapse, which lasts four or five days, and ending, as before, in a critical sweating. Recovery usually follows the second paroxysm, but not unfrequently a third paroxysm occurs, and sometimes a fourth.

The paroxysms are occasionally broken by remissions or pseudo-crises; and the apyrexial periods are sometimes interrupted by slight temporary rises of temperature.

Bearing these characteristics in mind, we shall be able to understand the significance of Heydenreich's observations. He found that every rise of temperature, whether that of the true paroxysm or that following a pseudo-crisis, or those occurring during the intermissions, was invariably preceded by the

* L. Heydenreich, Ueber den Parisiten des Rückfallstyphus; Berlin, 1877. He gives a good résumé of the literature of the subject.

appearance of spirilla in the blood. They disappeared entirely shortly before the crisis, and remained absent during defervescence and the subsequent apyrexial periods. During the whole of the main paroxysms spirilla were usually to be found in the blood, but their number varied in the most puzzling manner from day to day. One day they were abundant, the next day they were scanty, and the day after again abundant; they even varied at different hours of the same day; sometimes they vanished altogether for a time, and then reäppeared in vast numbers a few hours later. Throughout these variations the temperature remained steadily high, or with only slight or moderate oscillations.

These discrepancies had been observed by previous inquirers, and had led some to doubt whether the spirilla had anything to do with the virus of relapsing fever; but a happy idea suggested itself to Heydenreich, which seems capable of explaining them.

He found that when a little blood containing spirilla was abstracted from the patient and kept at the ordinary temperature of the room, the organisms lived in it for several days; but if the blood was placed in an incubator and maintained at the normal temperature of the body, they died in from twelve to twenty hours, and if the temperature was kept up to fever heat (104 deg. F.) their life was still shorter; they only survived from four to twelve hours. This led him to the conjecture that during the main paroxysm not one but several successive generations of spirilla were born and died before their final disappearance at the crisis. He surmised that in the usual course the broods would overlap each other more or less, the new brood making its appearance before the last survivors of the old brood had passed away. This explained the variable number of spirilla found on different days and different hours of the same day. Sometimes the old brood would have altogether perished before the new brood reached maturity; this explained the occasional temporary absence of spirilla from the blood; it also explained the remissions or pseudo-crises sometimes observed in the course of the paroxysms. So precise was the correspondence found to be between the appearance of the spirilla and the subsequent rise of

temperature, that Heydenreich was able to predict with certainty, during the apyrexial periods, the approaching advent of a transient rise of temperature from the re-appearance of spirilla in the blood, although at the time the patient presented no other indication of what was about to happen.

If these observations are to be relied on—and they appear to have been made with the most scrupulous care—we are led to the conclusion that the spirilla are the actual virus of relapsing fever.

The same conclusion is also strongly indicated by the results of inoculation experiments. Relapsing fever is easily communicated to a healthy person by inoculation with the blood of a patient suffering from the disease. Experiments made in Russia on individuals who voluntarily submitted themselves to this practice show that the blood is only infective during the paroxysms, but not at the crises nor during the apyrexial periods. None of the fluids or secretions of the body except the blood are infective. All this shows that the virus is intimately associated with the spirilla, and is absent or present in exactly the same circumstances as the latter.*

The occasionally observed vanishing and re-appearance of the spirilla during the paroxysm, without a possibility of new infection, seems to indicate that when the spirilla disappear they leave behind them something in the nature of seed or spores, from which the new brood springs forth. Ocular evidence of such germs is, however, still wanting. Several observers have noticed minute particles in the blood of relapsing fever which might pass for spores, and Heydenreich observed that some of the spirilla had a dotted appearance. But hitherto all efforts to cultivate the spores out of the body have failed, and their power of developing spores is more an inference than a demonstration.

Splenic Fever.—The first trustworthy observation of the

* See a paper by Motschutoffsky, in the Centralblatt für die Medizinischen Wissenschaften, 1876, p. 193. During the paroxysm the blood was infective, whether spirilla were detected in it or not. This agrees with Heydenreich's theory, that their occasional apparent absence during the paroxysm is due to their being incompletely developed, or immature, and therefore unrecognizable under the microscope.

presence of organic forms in an infective disease was made in splenic fever. This formidable disorder attacks sheep, cows, and horses, and is not unfrequently fatal to man. In 1855, Pollender discovered minute staff-shaped bacteria in the blood of splenic fever. This discovery was confirmed in a very extensive series of researches by Brauell, and has been corroborated by Davaine and other inquirers in France.

The bacterium of splenic fever is a short, straight, motionless rod, about as long as the breadth of a blood-corpuscle, and, so far as is known, it exists in no other form in the living body. It is found besides in the blood, in the spleen, in the lymphatic glands, and in some other tissues. That this organism is the true virus of splenic fever has long been probable; and the labors of Davaine, Bollinger, Tiegel, Klebs, and, most of all, of Koch, have removed the last doubts on the subject. The work done by Koch is not only valuable as a triumphant demonstration of a disputed pathological question, but is noteworthy as a model of patient, ingenious and exact pathological research.

We here come across an example of scientific prescience on the part of two distinguished men which is worth notice. It had been remarked by several observers that the contagium of splenic fever, as it existed in the blood, was comparatively short-lived and fugitive, but that, under some unexplained circumstances, the contagium was very persistent, and lurks for years in stables and other places where cattle were kept. Dr. Burdon Sanderson, writing in 1874, inferred from this circumstance that the organisms of splenic fever must have two states of existence; namely, that of the perishable bacteria found in the blood and some other more permanent form, like seeds or spores, in which they were capable of surviving for an indefinite period. In like manner, Professor Cohn, guided by the botanical characters of the rods found in the blood, classed them in that group of bacteria named by him *Bacillus;* and, as he had observed that all the *Bacilli* produced spores, he inferred that the *Bacillus anthracis*—for so he named the bacterium of splenic fever—would also be found to produce spores. These previsions were proved by the researches of Koch to be perfectly exact.

The following is a brief abstract of those points in these researches which chiefly concern us.

Koch found that mice were peculiarly susceptible to the virus of splenic fever. The minutest particle of the fresh blood or spleen of an infected animal infallibly produced the disease when brought into contact with the living tissue of the mouse. He found further that he could cultivate the organisms artificially outside the body. He proceeded in the following manner. He placed a speck of the spleen containing the rods on a glass slide in a drop of the blood-serum of the ox, or a drop of the aqueous humor of the eye of the same animal, and covered it with a piece of thin glass. He then placed the slide in an incubator maintained constantly at the temperature of the body, and examined the preparation from time to time under the microscope. In a couple of hours, he observed that the rods began to lengthen, and in a few hours to grow into long threads. These threads, after growing to twenty or a hundred times the length of the original rods, began by and by to assume a dotted appearance. The dots gradually increased in size and distinctness until after the lapse of fifteen or twenty hours from the beginning of the experiment, they acquired the appearance of strongly refractive oval bodies, which were placed at regular intervals along the threads. Finally the threads broke down, and the oval bodies, which could be nothing else than spores, were set free and sank to the more depending parts of the drop. If the supply of nutriment were then exhausted, the process ended here, and the spores remained permanently unchanged; but if additional nourishment were provided, the new spores were seen presently to elongate into rods, exactly resembling those originally existing in the blood or spleen. If the conditions were favorable the new rods, after a period of rapid multiplication, in their turn entered on the formation of a new generation of threads and a new generation of spores. The figures represent the successive phases of this short and simple, but perfectly definite, life-history as they were actually seen to occur under the lens of the microscope.

The next point was to test the pathogenic activity of the rods and spores cultivated in this artificial manner. This was done by introducing minute quantities of the rods or of the spores alone into a small incision made in the skin of a mouse. Speedy

death from splenic fever occurred in every instance. Koch found, without exception, that if the tested material produced threads and spores in the incubator, it also produced splenic fever when inoculated into the mouse; and, on the contrary, if no such growth and development took place in the incubator, the tested material produced no effect when inoculated into the mouse. Proof could go no further; the infection absolutely followed the specific organism; it came with it; it went with it. These observations were repeated with the strictest precautions at the Physiological Institute at Breslau under the eyes of Professor Cohn and other competent observers, who fully corroborated their exactness.

The variable duration of the activity of the contagium of splenic fever was now explained. Koch found that the rods had only a comparatively fugitive vitality; they lost their infective power generally in a few days; at the most in about five weeks. But the spores retained their infective activity for an indefinite period in spite of all kinds of maltreatment. They could be reduced to dust, wetted and dried repeatedly, kept in putrefying liquids for weeks, and yet at the end of four hours they still displayed an undiminished virulence.

Cohn calls attention to the fact that the organism of splenic fever is identical in form and development with the *B. subtilis*. The only difference he could detect between them was that the rods of *B. anthracis* are motionless, while those of *B. subtilis* exhibit movements. The figures you see before you might be indifferently labeled *B. subtilis* or *B. anthracis*, and yet one of these organisms is a harmless *saprophyte* and the other a deadly contagium. We have likewise seen that the spirilla of splenic fever are morphologically similar with the *Spirochaete plicatilis*. We have further seen that there is ground for the assumption that the infective agent in contagious septicæmia is the common bacterium of putrefaction, but modified in such a way as to have become endowed with a heightened capacity for growing in the healthy tissues. Do not these remarkable coïncidences point to a natural explanation of the origin of contagia? If contagia are organisms, they must necessarily possess the fundamental tendencies and attributes of all organized beings.

Among the most important of these attributes is the capacity for "variation" or "sporting." This capacity is an essential link in the theory of evolution; and Darwin brings forward strong grounds for the belief that variation in plants and animals is not the result of chance or caprice, but is the definite effect of definite (though often quite obscure) causes. I see no more difficulty in believing that the *B. anthracis* is a sport from the *B. subtilis* than in believing, as all botanists tell us, that the bitter almond is a sport from the sweet almond—the one a bland innocuous fruit, and the other containing the elements of a deadly poison.

The laws of variation seem to apply in a curiously exact manner to many of the phenomena of contagious diseases. One of these laws is the tendency of a variation, once produced, to become permanent and to be transmitted ever after with perfect exactness from parent to offspring; another and controlling law is the tendency of a variation, after persisting a certain time, to revert once more (under altered conditions) to the original type. The sporting of the nectarine from the peach is known to many horticulturists. A peach tree, after producing thousands and thousands of peach buds, will, as a rare event at rare intervals, produce a bud and branch which ever after bear only nectarines; and conversely a nectarine at long intervals and as a rare event will produce a branch which bears only peaches ever after. Does not this remind us of the occasional apparent sporting of diphtheria from scarlet fever? My friend Dr. Ransome, who has paid so much attention to the laws governing the spread of epidemics, relates the following instance: A general outbreak of scarlet fever occurred at a large public school. One of the masters who took the infection exhibited diphtheritic patches on the throat. This patient was sent to his own home in Bowdon. Six days after his arrival his mother was attacked, not with scarlet fever, but with diphtheria; though there were no cases of diphtheria at the time, neither at the school nor in Bowdon.*

* Complex cases of mingled scarlet fever and diphtheria are sometimes seen. Similarly the peach tree will occasionally, among a multitude of ordinary fruit, produce one fruit of which one-half has the peach character and the other half the nectarine character.—*Darwin.*

Take another illustration: Cholera suddenly breaks out in some remote district in India, and spreads from that centre over half the globe. In three or four seasons the epidemic dies away and ceases altogether from among men. A few years later it reäppears and spreads again, and disappears as before. Does this not look as if the cholera virus were an occasional sport from some Indian saprophyte, which, by variation, has acquired a parasitic habit, and, having run through countless generations, either dies out or reverts again to its original type? Similarly, typhoid fever might be explained as due to a variation from some common saprophyte of our stagnant pools or sewers, which, under certain conditions of its own surroundings, or certain conditions within the human body, acquires a parasitic habit. Having acquired this habit, it becomes a contagious virus, which is transmitted with its new habit through a certain number of generations; but finally, these conditions ceasing, it reverts again to its original non-parasitic type.

In regard to some contagia, such as small-pox and scarlet fever, it might be said that the variation was a very rare one, but also a very permanent one, with little or no tendency to reversion; while others, like erysipelas and typhoid fever, were frequent sports, with a more decided tendency to reversion to the original type. In regard to some pathogenic organisms, it might be assumed that the parent type had disappeared and the parasitic variety only remained, just as the wild parents of many of our cultivated flowers and vegetables have disappeared, leaving behind them only their altered descendants.

How aptly, too, this view explains what used to be called the "Epidemic Constitution," and the hybrid forms and sub-varieties of eruptive and other fevers.

I must not pursue this vein further. I have said enough to indicate that this conception enables us—if it does nothing else—to have coherent ideas about the origin and the spread of zymotic diseases.

In applying the doctrine of pathogenic organisms—or *pathophytes*, as they might be termed—to the explanation of the phenomena of infective diseases, we must be on our guard against hard and fast lines of interpretation. So far as our very lim-

ited knowledge now extends, the pathophytes hitherto discovered all belong to that group of the fungi which are called bacteria. Now fungi have two marked characteristics; namely, the tendency to assume the parasitic habit, and the possession by some of them of a special ferment action. Both these characteristics may bear a part in the action of pathogenic organisms. In the complex phenomena of septicæmia such would appear to be the case—a poisonous ferment-product first intoxicates the system, and then the organisms themselves prey upon the dead or moribund tissues.

There is, as Dr. B. Sanderson has pointed out, a marked distinction to be drawn between those common processes of infective inflammation which are shared in by animals generally—such as septo-pyæmia, erysipelas, and the diphtheritic process—and those specific contagia which are strictly confined, like ordinary parasites, to particular species. There is nothing in all nature more wonderful than the intimate and subtle nexus which unites a parasite to its host. A hundred examples might be given. Even different varietes or races of the same species have different and exclusive parasites. It would seem as if this nexus depended on some delicate shade—a *nuance*—something like an odor or a savor, or a color, rather than on differences of structure or chemical composition. The same minute correlation is seen in specific contagia—all are strictly confined to one or a few species. Vaccinia is confined to man, the horse, and the cow; scarlet fever is confined to man, and perhaps the swine; most of our specific diseases are absolutely confined to man. The human and ovine small-pox, although so wonderfully similar, are not intercommunicable. I am therefore inclined to believe that, in regard to specific contagia, we shall find more guiding analogies in parasitism than in fermentation. Our information at present is, however, so defective that it is not wise to enter into further speculations on this subject.

Gentlemen, I have brought my task to a conclusion. I believe that the doctrine of a contagium vivum is established on a solid foundation; and that the principle it involves, if firmly grasped in capable hands, will prove a powerful instrument of future discoveries. And let no man doubt that such discoveries

will lead to incalculable benefits to the human race; our business in life is to do battle with disease, and we may rest assured that the more we know of our enemy the more successfully we shall be able to combat him.—*British Medical Journal.*

CLINICAL RECORDS.

"Ex principiis, nascitur probabilitas: ex factis, vero veritas."

ART. I.—*A Case of Farcy.* By ISAMBARD OWEN, M. D.

For the notes of this interesting case we are indebted, says the "Lancet," to Dr. Isambard Owen, medical registrar.

A stableman, aged twenty-six, was admitted on June 8th, 1877. There was a family history of cancer. Excepting attacks of winter cough, the patient was of sound constitution. He had had no privations. He was accustomed to take three or four pints of beer daily, but not in the habit of exceeding this amount. He was in contact with glandered and farcied horses for five or six months previous to the commencement of the disease, and for thirty-one days subsequently. Except his customary cough, which had been present since November, and which did not undergo any increase during the progress of the malady, his health prior to the attack was good.

The onset was sudden, with languor and with shivering, which lasted till he went to bed and slept. Next morning an inflamed lump appeared on the front of the left forearm, not, as far as could be ascertained, at the site of any previous lesion. From that time he suffered from weakness, anorexia, wasting, and profuse hot night-sweats. The bowels were costive, and the urine high-colored. The lump on the forearm enlarged, softened, and developed into an abscess.

On the twenty-fifth day pain came on in the calves and the left knee, and on the thirty-second day the pain in these regions became aggravated. On this day the man attended as a casualty patient, and the abscess on the forearm was opened by the house-surgeon. On the thirty-ninth day, on rising in the morn-

ing, a lump of the size of a hazel-nut was found in the upper part of the left calf, and later in the day he was admitted an in-patient. He was then much emaciated; the cheeks were flushed; the lump in the calf was tender to the touch; the left knee, though neither swollen nor red, was hotter to the feel than its fellow. The remains of the ulcer appeared as a deeply excavated wound the size of a sixpence, at the bottom of which the tendons lay exposed. Iodide of potassium, with sal volatile and bark, was administered, and lead opiate lotion was applied to the knee. On the fortieth day the man's condition was not materially changed; the temperature in the evening was 103° F. On the forty-first day the morning temperature was 100.4°; evening temperature 103.4°. The knee was less painful, and the bowels were opened, the first time for five days. On the forty-second day the morning temperature was 102.4°; evening 103.6°. There was neither pain nor tenderness in the right calf, but the left calf was very painful. On the forty-third day the morning temperature was 102.4°; evening 104°. There was no pain except in the left knee on movement. The right eyelids and surrounding parts were inflamed and greatly swollen. Just above, on the forehead, were two inflamed but painless indurations, each the size of half a pea, situated in the subcutaneous tissue. Ordered three grains of quinine and fifteen minims of tincture of perchloride of iron every four hours, with a daily allowance of eight ounces of port wine. On the forty-fourth day the morning temperature was 102°; evening 103°. One of the frontal lumps enlarged. Six ounces of brandy given in addition. On the forty-fifth day the morning temperature was 102°; evening 105°. The eyelids were harder, exhibiting a number of irregular flat purulent heads. The frontal lump was also pustular. Diarrhœa and delirium commenced. At 3 P. M. a rigor occurred, which lasted five minutes, and was accompanied by violent delirium. At 7 P. M. a second rigor, slight. On the forty-sixth day the morning temperature was 103°; evening 104°. The purulent heads were more numerous and confluent. There was a small pustule on the right cheek, and another on the left forearm. A third lump had appeared on the forehead. Delirium continued, and the

motions became involuntary. The allowance of brandy was doubled. On the forty-seventh day numerous small pustules had appeared over the surface of the whole body, especially on the extremities. Inflammatory patches of skin were seen about the feet and the left knee, and in other parts. A red fluctuating swelling surrounded the knuckle of the right mid-finger. There were profuse diarrhœa, restless delirium, agitation and tremulousness. The dose of quinine was augmented to eight grains, bark and acid being substituted for the iron. Death occurred at 4:30 P. M.

The night-sweats continued in the hospital. The pulse ranged from 80 to 90 on admission, and did not exceed 120 afterwards. Weak at first, it gradually increased in vigor and tone, and became hard and strong on the forty-third and forty-fourth days. It then progressively decreased and softened until, six hours before death, it was no longer perceptible. The urine from the forty-second day, as long as it could be collected, was found to be slightly albuminous.

No nasal discharge occurred during the case. There was no history given of glandular enlargement, but the glands in the left axilla had a shotty feel under the fingers.

At the autopsy it was found that the edges of the wound on the forearm were so far undermined as to form a cavity five inches by three inches, the floor of which was the bare muscles. The cavity contained neither pus nor pyogenic membrane. The neighboring parts were unaffected. On the lower part of the right popliteal space was an abscess containing about five ounces of thick pus. The right knee-joint was distended with semi-purulent synovia; the synovial surface of the ligamentum mucosum was congested; under this ligament there was a small collection of pus in connection with exposed bone. The cartilages and the rest of the synovial surface were natural. The whole of the medullary canal of the right femur was filled with grumous pus. The cancellous tissue of the upper end was red and inflamed, at the lower end infiltrated with pus. No inflamed or blocked vein was found in any part, nor was there any material affection of the lymphatic glands beyond slight enlargement and increased vascularity of those in the left axilla.

There were a few bands of adhesion in the right pleura. The lungs were congested, intensely so at the apices, but not sufficiently to make them sink in water. On the surface of both, at the least congested part, appeared a few nodules of the size of a small pea and under, resembling the usual deposits of pyæmia in possessing red areolæ and yellow puriform centres, but differing from them in the absence of any pleuritic false membrane. The progress of decomposition in the congested portions was sufficient to mask the presence of such nodules had any existed there. The heart weighed eleven ounces; a firm currant-jelly clot filled the right auricle; the other cavities were empty and partly contracted. The tricuspid opening admitted five fingers; the mitral valves were slightly thickened. The aorta was free from disease. The liver was pale and rather tough, the gall-bladder nearly empty. The brain was congested and rather soft. The spinal cord was softer than natural; the posterior ganglia much congested; the anterior plexus of veins loaded with blood. The spleen was softer than usual; the Malpighian bodies not apparent. There was slight congestion of the kidneys, larynx, stomach, and duodenum. The mucous membrane of the bronchi was delicate, and free from congestion.

ART. II.—*An Exceptionally Difficult Case of Ovariotomy.*

B. G——, aged thirty-five, was sent to Mr. Tait by Mr. Horsfall, of Wakefield, on account of an ovarian tumor which had been growing for two years, and in the history of the last three months of its progress there were indications of recurrent peritonitis. This appeared to be the probable explanation of the remarkable peculiarity in the case, that a note of intestinal resonance could nowhere be obtained. Careful examination made it evident that there was an ovarian tumor, though at first sight the case really looked like one of ascites, and the absence of the intestinal note made it probable that the stomach and intestines were all behind the tumor.

On March 24th Mr. Tait proceeded to remove the tumor, and found that adhesions existed to all the viscera except the right

kidney. The tumor was attached to the liver and spleen, to the anterior surface of the stomach, the whole of the omentum, several coils of small intestine, the left kidney, and all over the parietes on every side as far as the brim of the pelvis. The adhesions were firm, and bled freely, and several large vessels had to be tied. The fimbriæ of the left Fallopian tube were glued on to the posterior surface of the tube. The pedicle was quite six inches wide, and along its left side lay an enormous spermatic vein, quite as large as a finger embedded in adhesions, and which required the greatest care to isolate it without injury. The pedicle was secured by a clamp, the abdomen was carefully cleaned out, and the wound closed after an operation which occupied quite two hours.

The patient suffered severely from shock, but, thanks to the timely administration of some champagne, she rallied. She had no further symptoms which caused anxiety. The clamp came off on the tenth day; she got up on the fifteenth, and went to the country nineteen days after the operation in a condition of convalescence.

Another noteworthy feature in the case is that the tumor consisted of an immense sac, with only a small mass of the original tissue of the ovary included; but this was undergoing cystic distension, so that the tumor was not unilocular. Mr. Lawson Tait has already expressed the belief (Hastings' Essay) that ovarian tumors are never unilocular, but that all unilocular growths are of parovarian origin.—*London Lancet.*

ORIGINAL CORRESPONDENCE.

"Sit mihi Fas scribere audita."

An Exposure—The Columbia Hospital and Lying-in Asylum—A Government Institution, with some account of its past and present Management.

WASHINGTON, D. C., October, 1877.

Dr. E. S. Gaillard:

Dear Doctor,—I wish, through your Journal, to give to the Public some very interesting information in regard to the "Act

to incorporate the Women's Hospital Association of the District of Columbia," which was passed by Congress and approved June 1, 1866, with some of the results.

The following are the more important provisions of this Act:

That the object of the Association hereby incorporated "is to found in the city of Washington a hospital and dispensary for the treatment of diseases peculiar to women and a lying-in asylum, in which those unable to pay therefor shall be furnished with board, lodging, medicine, and medical attendance gratuitously, and to that end full powers are hereby conferred on the Association." (Sec. 5).

That "the affairs of said corporation shall be under the control and management of a board of twelve directors (consisting in the beginning of the first twelve of the incorporators named in the act), or such further number as the duties of the incorporation may require." (Sec. 3).

That said corporation shall have "power to accept, purchase, receive conveyances of, and hold property, either personal or real, to an amount necessary for the full accommodation, convenience and support of the institution and those participating in its benefits." (Sec. 6).

That Congress shall have power to "alter, amend, or repeal" the act "at any time hereafter." (Sec. 8).

In the sundry civil appropriation bill of 1872 there was appropriated "for purchase of the building now occupied by said hospital, with forty thousand feet of ground, twenty-five thousand dollars: *Provided*, That the title of said real estate shall be vested in the United States for the use of said hospital, and that no part of the real or personal property now held or hereafter to be acquired by said institution shall be devoted to any other purpose than a hospital for women and a lying-in asylum without the consent of the United States."

These extracts from the charter determine definitely the objects of the institution, and the above clause, quoted from the sundry civil appropriation bill of 1872, fixes the ownership of the "real or personal property now held or hereafter to be acquired by said institution" in the Government of the United States. If anything further was necessary to settle ultimately

the rightful ownership of the institution, the annual appropriations made by Congress for its maintenance and support might be cited.

Statement of annual appropriations by Congress for the institution: 1866, $10,000; 1867, $10,000; 1868, not obtained—probably $10,000; 1869, $15,000; 1870, $10,000; 1871, $18,000; 1872, $18,500; 1873, $52,000; 1874, $28,500; 1875, $32,500; 1876, $24,000—total $217,000. Aggregate $227,000.

This amount does not include the sums (nor the sums contributed by the city government, which were considerable) annually received from "pay-patients," which are unknown quantities, never having been paid into the United States treasury, or in any manner accounted for. Neither the Government of the United States, which has been its munificent almoner from the beginning, nor the public, for whose benefit it was created, have any knowledge whatever of the amount of money received from "pay-patients," nor how it has been expended.

Now that it has been shown that the institution belongs (the claim of a portion of the Directory to the contrary notwithstanding) to the Government of the United States, the next inquiry that presents itself is: Has its management been proper and commendable?

The charter declares the purpose of the Association to be to "found in the city of Washington a hospital and dispensary for the treatment of diseases *peculiar* to women, and a lying-in asylum," yet numbers of women suffering from diseases not "peculiar" to the sex have been admitted to its wards. Cases of consumption, pneumonia, hip-joint diseases, malarial, typhoid and remittent fevers, and other affections equally objectionable to the proper hygienic conditions of a lying-in asylum have been admitted.

Chapter XII of the "By-Laws and Regulations," now in force, reads as follows: "Patients will be admitted to private rooms in the institution on payment of not less than $6 per week, the amount to vary with the room occupied and the attendance required. Board payable weekly in advance. This includes medicine, medical and surgical attendance."

The amount charged varies from $6 to $10 a week in an

institution owned and supported by the General Government, which has declared its object to be "to found in the city of Washington a hospital for the treatment of diseases peculiar to women and a lying-in asylum, in which *those unable to pay therefor* shall be furnished with board, lodging, medicine, and medical attendance gratuitously." The Congress of the United States did not contemplate, nor does the language of the charter authorize, the establishment of a boarding-house for the reception of women sick with diseases peculiar to the sex or pregnant; yet the Management has so construed section 5 of the act of incorporation, and claims that this feature, thus engrafted upon the institution, has transformed it into a private hospital, which can be conducted irrespective of the rights of the General Government and without responsibility for the sums of money received from this source. The number of pay-patients is probably never less than one-fifth, and occasionally may reach one-third of the daily average of patients in the institution. The daily average of patients for any year since 1866 has not probably exceeded thirty, which, at the maximum charge of $10 per week for board, lodging, medicine, and medical attendance, would make the daily cost about $43, or nearly $16,000 a year. Yet in 1875 Congress appropriated $32,500 exclusive of the amount received from pay-patients, which, upon the same basis of calculation (one-fifth of the daily average of patients at $10 per week), would amount to $3,131, which, added to the appropriation by Congress, would make $35,631 expended for the support of a daily average of thirty patients for one year, or $1,187 for each patient per annum. These calculations are based upon a high daily average of patients at the maximum cost of pay-patients fixed by the *by-law* previously cited. But it must be manifest that a number of the pay-patients (perhaps at all times one-half of their number) do not pay more than $6 per week, a sum it seems deemed by the authorities adequate to cover cost of "board, lodging, medicine, and medical attendance;" and therefore a rate which should cover the cost of maintaining the pauper patients in an institution free from rent, "taxes and assessments." If the cost of each patient per annum had been estimated upon the basis of $6

per week, it would have nearly doubled the amount previously named, as the apparent cost per annum per patient.* There need, however, be no speculation as to the daily average or daily cost of patients; for during the past eighteen months the number of patients in the house has been recorded daily, and Congress can require the resident physician to produce the record. With these data and the aggregate amount of expenditures during the same period, any tyro can ascertain the average daily cost of each patient in money, to which should be added the wear and tear of the luxurious and costly furniture which adorns certain apartments. It will doubtless not be so easy to ascertain the number of pay-patients or the amount of money which they have paid into the treasury of the institution.

Many of these pay-patients came from the States; whether brought thither by members and Senators or attracted by the ambiguous reputation of its recent chief medical officer, can not of course be ascertained. In view of the extravagant expenditures made in support of this institution and with the purpose to correct a manifest abuse, a number of physicians residing in this city and connected with other hospitals and medical institutions, presented, through Mr. Stevenson, of Illinois, to the first session of the Forty-fourth Congress, a bill entitled "A Bill to abolish and to establish a new Board of Health for the District of Columbia, and for other purposes" (House bill No. 3,194), which contains the following provision, section 7: "That all appropriations made by Congress for the support of any hospital, either in whole or in part, shall be disbursed under the direction of the Surgeon-General of the United States Army: *Provided,* That the rates allowed by him shall not exceed one dollar per day for each patient actually treated in each hospital," and providing further in section 8, "that no salary shall be paid to any medical officer other than the resident physician connected with any hospital supported in whole or in part by the Government of the United States." The allowance of one

* A daily average of thirty patients, including the pay and free, at a weekly cost of $6 for each patient, would make the weekly cost $180, or $9,760 per annum; whereas in 1876 Congress appropriated $24,000, exclusive of the amount received from the "pay-patients."

dollar per day was based upon the ascertained cost of each patient per day in the army hospitals and upon the contract made by the Government with the authorities of Providence Hospital for the maintenance of the transient sick paupers, for which Congress for many years has made annual appropriations. If the Government can maintain sick soldiers at a cost not exceeding one dollar per day, and transient sick paupers at a cost not exceeding six dollars per week, why must it pay more than three dollars per day (including those who are supposed to defray their own expenses) for each patient in its hospital for "diseases peculiar to women and a lying-in asylum?"

To recur to the charter. By section 3 the number of directors is limited to twelve, "or such further number as the duties of the corporation may require," and regulation 1, chapter I, prescribes that the "Board of Directors shall consist of not more than fifteen members, with one Senator and two Representatives added to it by act of Congress." The charter and the by-law passed in pursuance thereof are indefinite in regard to the number of directors. Section 2 confers authority upon the Board "to fill all vacancies created by death, resignation or otherwise," and the by-law, chapter I, prescribes that "vacancies occurring in the Board may be filled at any regular meeting." The number is indefinite; the terms of service are unlimited, and the majority of a quorum (seven) possesses the power to fill vacancies at any regular meeting, so that the controlling influence can maintain its ascendancy forever by filling or not filling vacancies, or by increasing the number, as may best suit and secure their purposes, objects and aims. Such provisions of law are against public policy, contrary to the usages of the Government, demoralizing in their tendencies, and conduce inevitably to the formation of cliques, combinations, and rings, which accept any opportunity to promote their ulterior purposes. No banker or capitalist would engage in an enterprise, with or without a charter, which vested all authority in a Board of Managers indefinite in number, with unlimited terms of service, and with indefinite power to increase its number or fill its vacancies. Honesty is very prone to cease where responsibility terminates. The consonance between the

language of the charter and the by-laws passed in pursuance thereof clearly manifests the animus which prompted the authors of the enactment to clothe the powers conferred upon the Association in language so unusual and peculiar. He or they projected a great corporation to be held in perpetuity by themselves, their heirs and assigns. This might be tolerated or excused if any one of the directors had ever contributed one penny towards defraying the expenses of the establishment, or owned a farthing's worth of the property. Even the pen, ink and paper with which their acts, if at all, are recorded, are drawn from the supplies of the Interior Department, and even the printing of letter heads, etc., is done at the Government printing office. The addition to the Board of a Senator and two Representatives by act of Congress in 1872 was another of those ingenious devices to promote the aims of ring-management; for it was easy to secure the selection of friends who would stand sponsors for them on the floors of the two Houses of Congress.

In this connection it is proper to allude to the manner in which the directors conduct business at their meetings. Whenever anything is to be accomplished, as for instance the election of officers, a member who is advised of the purpose to be attained moves the appointment of a committee, sometimes naming the members thereof, who shall make the nominations for the officers, and their report is adopted without allowing an opportunity to the minority to express by vote or otherwise their preference for others. Thus the President, Gen. O. E. Babcock, the champion engineer of whisky rings, and his coterié of adherents have perpetuated their administration of the affairs of the Association.

The most important portion, however, of the history of this national lying-in asylum pertains to its medical management. To Dr. J. Harry Thompson is due the credit of conceiving the project and engineering the bill, through Congress, incorporating the Association. He has enjoyed the honor, discharged the duties, and reaped the rewards of the office of surgeon-in-chief from its organization until the 20th of September last. Until the fall of 1875 he was practically the active and chief fidu-

ciary officer, as well as the trusted surgeon of the institution. To him has been awarded the merit of securing the extraordinary appropriations from the treasury of the United States, and in his person were combined the major domo and factotum of the establishment, who purchased and dispensed with lavish generosity the supplies, hospital stores and necessary appurtenances. During the year 1875 the Board of Directors, impelled by the force of public opinion and the wide-spread rumors of wrong-doing, took measures at the annual meeting in September to reörganize the management of the institution, which culminated in December in the adoption of a code of regulations which legislated Dr. Thompson out of the direction and off the important committees; took from him the appointment of the resident physician and matron; curtailed his authority over the subordinates; and deprived him of the power of purchasing hospital stores and supplies. At the same time he was retained as surgeon-in-charge with a salary of $2,000 per annum. The office of assistant surgeon was abolished, and at the same time there was organized an "Advisory and Consulting Board of physicians and surgeons," to consist of not more than eight medical gentlemen residing in the District of Columbia. This Board was required (by regulation 4, Chapter IX) to "present at each annual and semi-annual meeting to the Board of Directors, through their secretary, a report of the medical and surgical service of the hospital, with such recommendations in regard to securing its greater economy and efficiency as their observation may warrant. In addition to these reports, communications upon those and kindred topics by the Advisory Board, or a majority of those on duty, will be received by the Board of Directors through their secretary at any regular meeting and respectfully considered." In addition they were made "counselors" and required (one-fourth being on duty for three months in each year) to visit the hospital "once during each week," and at each visit to "report in writing, in a book kept for that purpose, the condition of the patients and building." It was further provided that "no capital operation shall be performed, except in cases of urgent necessity, without the approbation of at least three of the Consulting Board." These

were wise, judicious, and needful regulations, exhibiting a spirit of reform, believed at the time to be sincere, and evincing a wish to prohibit and mitigate abuses admitted to exist by the enforced revision of their regulations and the adoption of the prohibitory by-laws.

The Advisory and Consulting Board entered upon the discharge of the duties required of them, as set forth in the foregoing extracts from the regulations; and in September, after nine months' service and observation, submitted to the annual meeting of the Board of Directors a report in writing, "with such recommendations in regard to securing its greater economy and efficiency as their observation" warranted. These recommendations were referred to a special committee, organized in the customary manner by resolution, naming the three constituents. After several months' deliberation the committee reported to the directors December 21st, 1876. This report succinctly sets forth both the recommendations made by the advisory and consulting physicians and those submitted by the special committee of the directors, and it was adopted. These propositions will be considered *seriatim*.

"The first resolution recommended by the Consulting Board is in these words:"

"At the request of the surgeon-in-chief the visiting physicians and surgeons may visit any particular patient as often as he (the surgeon-in-chief) may desire them; but in no case shall the surgeon-in-chief elect others than the visiting physicians and surgeons to make such visit. All consultations shall be confined to members of the Consulting Board, and no surgical operation shall be performed except by the surgeon-in-chief, or, at his request, by some member of the Advisory Board."

This resolution the committee recommended the Board to approve, with the addition of the words "*except by request of the patient and with the approbation of the visiting physicians and surgeons,*" to the sentence ending with the words "such visits;" the insertion of the words "*except as above provided*" after the words "Consulting Board" in the next sentence, and the addition of the following words at the conclusion of the resolution; "*or other fully recognized members of the profession and with the approbation of the members of the Consulting Board.*"

It must be manifest to the most casual reader that the object of the advisory and consulting physicians, in making the recommendation set forth in the resolution above, was to prohibit existing irregularities in the medical management of patients; but the amendments suggested by the committee and approved by the directors not only failed to accomplish the object, but practically clothed the surgeon-in-chief with extraordinary authority and power to secrete, conceal and hide a patient in the house; for in a subsequent amendment it is provided "that no private patient shall be visited, examined or prescribed for by other than the surgeon-in-chief, unless by special request of such patient and in consultation with the surgeon-in-chief." Can it be that the Government of the United States has established and supports an institution in which women suffering from "diseases peculiar to the sex" are to be hidden and secluded from the visits and observation of any other than a surgeon whom the directors may select? By her "special request" she may be visited by another, but such request must come through the individual at whose will she is thus secluded.

2. "As to the resolution advising the removal of carpets from all sleeping apartments of patients, your committee recommend their removal from all rooms used for lying-in purposes; but that they be, for the present, allowed to remain in such private rooms not used for such purposes."

The object of this recommendation was to promote the hygienic conditions of the house as well as in the interest of economy; but it was unfortunately in contravention of certain speculative tendencies, and carpets purchased at prices varying from $2 to $4 per yard contributed amazingly to the welfare of impecunious dealers.

3. "As to the recommendation to admit a member of the Consulting Board to all the meetings of the Board of Directors for purposes of mutual consultation and explanation, your committee are of the opinion that such admission is not necessary or advisable."

Of course not. It is not probable that a Board of Directors which had empowered its surgeon-in-chief to seclude and hide a sick woman at his will and pleasure would admit to its delibera-

tions one of a Board of Physicians who were seeking to prevent such an act, for he would there confront them and their chosen agent, face to face, and be a living witness of their purposes and intent.

The fourth recommendation related to a conflict between two of the regulations, which was corrected.

5. "As to the proposition to abolish the salary of the surgeon-in-chief, your committee are of the opinion that this, for the present, would not promote the interests of the hospital. Arguments and considerations that would be of great force, if this were a hospital for general purposes, fail when we consider the prime fact that this is a hospital for special purposes, requiring special capacities and skill in its chief medical officer. We are of the opinion that it is wise for the Board of Directors to retain in their hands the power each year to regulate and fix the remuneration of its medical officers according to their judgment of what will best promote the prosperity of the hospital at that time."

If the committee and the directors had stopped with the simple denial of the proposition to abolish the salary, which was in exact accordance with the opinion of the physicians connected with the other medical institutions and charities in the city, it would have been accepted as the expression of their opinions, perhaps honestly entertained; but the reasons assigned clothed their refusal with a ludicrous gravity only becoming to a directory that would invest the "chief medical officer" of a "hospital for special purposes" with power to conceal, hide and seclude from observation and visits sick women.

The sixth "recommendation, that the resident physician be appointed after a competitive examination by a Medical Board connected with the hospital, and be not allowed to engage in private practice," but required to devote his services to the hospital, was denied, and the appointment of such officer transferred to the surgeon-in-chief. The Government of the United States has adopted the system of competitive examinations for the admission of surgeons to the medical corps of the Army, Navy, and Marine Hospital Service, and for the admission of cadets to the West Point and Naval Academies, yet the wiseacres

of Columbia Hospital pronounce this system a fallacy and a wrong when sought to be applied to a government "hospital for special purposes requiring special capacities and skill," and declare "its chief medical officer more competent to select his subordinates than the surgeon-generals of the army, navy and marine hospital service, are to select the members of the medical corps serving under their direction. The reader will not fail to recognize the "special capacities and skill" and their adaptation to the "special purposes" of either "the chief medical officer" or of his coädjutors, who must be credited with a turgescence of special administrative capacities.

7. "As to the recommendation to abolish the duties (office) of the surgeon-in-chief and to transfer his duties to a medical staff, if this were a general hospital, your committee might concur; but as this is a hospital devoted to special purposes and to special diseases and accidents, we are of opinion that such a radical change would be unwise and disastrous to the best interest of the hospital, and therefore recommend that it be disapproved."

In consideration of the fact that the recommendation of the advisory and consulting physicians to transfer the medical management of the patients to a corps of physicians and surgeons was in exact accord with the methods in successful operation in the hospitals throughout this country, in England, Ireland, Scotland, France, and perhaps all over the civilized world, the action of the directors in rejecting the proposition proves, incontestably, their utter incapacity to properly manage the institution, and suggests a most extraordinary subserviency to the domination of unworthy and improper influences. The medical reader will recognize the comments of "your committee" as the obsolete dicta of a by-gone period and the mere repetition of the "argument and considerations" of men long afflicted with the "dry rot." To them the "special diseases and accidents" of women are such novelties that none other than one who might have been dismissed as an alarmist from an army in active operation could possess the "special capacities and skill" requisite for their treatment.

8. "Your committee also are of opinion that, unless in cases of emergency no examination of patients be made except

by the surgeon-in-chief or by his express direction in each case, with such of the Consulting Board as he may select to assist him. But no private patient shall be visited, examined or prescribed for by other than the surgeon-in-chief, unless by special request of such patient and in consultation with the surgeon-in-chief."

Human nature is, fortunately, a very variable quantity and subject to many erratic deviations from any fixed standard. It is not always easy to estimate the mental calibre, or to interpret the animus of men by their written words. What this paragraph means seems plain enough, but what could have been the motives which prompted a Board of Directors in charge of a hospital founded by a beneficent government for the care and management of indigent sick women to call to their aid a Board of Advisory and Consulting Physicians and Surgeons, and then to limit their examination and observation to "cases of emergency" and such others as the surgeon-in-chief might direct? How, under the operation of such a rule, could mistakes in diagnosis and in treatment be detected and prevented? How could the poor, indigent sick woman be saved from unnecessary operations and mutilations of her person? It conferred upon a single officer absolute power to control the person of every female admitted to the hospital, and to subject her to such treatment as might suit his whims, caprices or importunate judgment without revision or examination by any other person whomsoever. Nay, more, without the knowledge of any other than such "as he may select to assist him." And this regulation remains in force to-day the written evidence of audacious wrong and willful perversion of the trust confided to their keeping. But even this was not the crowning act. They struck from regulation 4, chapter IX, before quoted, all after the word hospital, and thus forbade the Advisory and Consulting Physicians and Surgeons from making any "recommendations in regard to securing its greater economy and efficiency." And now the dawn begins to illuminate the darkened picture and to bring into view its hidden features and emasculated form. The seclusion of patients; the concealment of mistakes and wrong-doing; the lavish expenditures without accountability; the individual self-aggrandizement; and the subserviency to the behests of a controlling ring

are emblazoned in indelible characters upon the illumined canvas.

This series of amended rules as "unanimously approved by the Board of Directors, and after being certified to by "O. E. Babcock, President," were sent to the Board of Advisory and Consulting Physicians and Surgeons. No one will be surprised to learn that they all resigned (see letter of resignation dated February 2, 1877); but many medical men will grieve to know that others sought and secured appointment to the vacancies. The Consulting Board, however, was not filled to half its proper number until the annual meeting in September last. Soon after this wholesale resignation of the original Advisory and Consulting Board, the trusted surgeon-in-charge applied for and obtained a leave of absence for six months to visit Europe, and sailed about the first of June. He had not departed from the shores of his adopted country before rumor credited his long contemplated visit to the "old homestead" on the Thames, with a sojourn beyond the reach of investigating committees, and speedily came rumors also of intrigue to secure the contemplated vacancy in the office of surgeon-in-charge of the hospital. Our committee who had so exultantly affixed their signs manual to the certificate attesting his "special capacities and skill"—which certificate had furthermore been unanimously approved by their coädjutors and certified to by "O. E. Babcock, President"—began, as the gamblers say, to hedge and to seek some pathway hitherto unknown to hospital management by which to escape from the dilemma in which they would find themselves in the event a vacancy should occur in the office of surgeon-in-charge. They struck out boldly for originality. Competitive examinations and division of labor by a properly arranged and selected corps of physicians and surgeons (as is almost the universal mode of hospital management,) were to them obsolete methods, and inadequate to secure "special capacities and skill" in the medical officers of a hospital "devoted to special purposes and to special diseases and accidents." And so it may be, for the "special purposes" so vividly delineated in the features of the mongrel group of talismanic characters shown on the illumined canvas are not the common attributes of simple-minded men, but the

acquired accomplishments of individuals after long and patient tuition in the school where virtue is not taught.

The Directors assembled in the spacious and luxuriously furnished office at the hospital building on the night of the 20th of September last, and across the hallway in the elegant parlor sat the aspirants for coming honors, some blushing with hopeful expectations and others pallid with apprehensions of disappointment, but all merry, like poor boys at a frolic, for Thompson—it must be spelled with a "p"—had resigned, and the door-plate had been removed.

The heavy office door swung to, the window sashes were fastened down, the president, enrobed in the vestments of his office, called to order, and the members, in dignified silence, sat erect in their cushioned chairs. After an invocation to the Congress of the United States for a continuance of its munificent donations, a member arose and with oppressive gravity announced "the resignation of Dr. J. Harry Thompson." Of course it was referred to a "special" committee for consideration and report. The resignation was accepted; the office of surgeon-in-charge abolished, and the duties of the office transferred to the resident physician on condition that he would supply a person to remain in the building during his absence in attendance upon his private practice outside of the hospital. The salary of the resident physician was increased from $1,000 to $1,800 per annum, and a salary of $1,000 per annum was voted to the treasurer of the institution. Heretofore the office of treasurer had not been salaried, but it has been currently reported that the officer had been allowed a commission for disbursing the appropriation made by Congress, which was paid out of the fund derived from the "pay-patients." Recently Mr. Secretary Schurz had required, in accordance with the law, that all money received from this source should be paid into the Treasury of the United States, and if this was done commissions could not be paid to the treasurer, as the accounting officers of the United States Treasury would not allow them in the account. The payment of a salary was the device to circumvent the action of the Secretary. Will the honorable Secretary submit? Will the people of this country silently acquiesce in this impudent defiance of authority

and law? Will the law-making power permit a charter to continue in force which sanctions the payment of salaries to its officers from the national treasury in direct contravention of the law?

No one in this community will impugn the personal integrity of the resident physician, a graduate of some five years' standing, and a man of more than average ability. His friends cherish the hope that he will prove equal to the grave responsibility which has been imposed upon him; but others have quailed under less responsibility and frittered away golden opportunities under improper influences. Fortunate indeed will it prove for the institution if he can surmount the obstacles in his way and emerge from the ruins unharmed. With a salary of $1,800 per annum; a commissariat suitable to the most refined tastes; all the appurtenances of a spacious dwelling; the use of a library and an abundantly supplied instrument-case, together with the privileges of a private practice, and all the advantages accruing to an institution supported by the bounty of the General Government, it would not be surprising if one less self-reliant and capable should track the foot-prints of his predecessor.

But the old regime continues in possession; the previously cited rules and regulations remain in force. To the reörganization of this Management the Medical Profession of this country and the Congress of the United States must address themselves. The former can not afford to hold its place and sit idly by whilst a gigantic corporation, deriving its maintenance from the common treasury, is inviting to its spacious wards and to luxurious ease the sick women from all parts of the country. Nor can it with dignity and self-respect withhold its antagonism to an institution which is bringing dishonor to hospital management. To this end, then, it behooves every individual member of the Profession to appeal to his representative in Congress to place this institution under such government as will conduce to economy and efficiency, and redound to the honor of its munificent benefactor and to the credit of the Medical Profession. Transfer the appointment of the directors to the President of the United States, by and with the advice and consent of

the Senate, and divide them into four classes, with terms of service of four years' duration, so that one-third will go out of office annually. Restore the disbursement of the appropriation to the Treasury of the United States, and require that all funds belonging to the institution, from whatever source derived, be deposited in the National Treasury. Destroy the boarding-house feature of the institution, and forbid the payment of salaries to any medical officer. It is idle to rely upon investigating committees. During the last Congress the House of Representatives passed a resolution directing the Committee on the District of Columbia to investigate this institution, but no amount of dragooning could force the chairman to commence the investigation. Committees can be packed, and individual members too often prove too weak to resist the blandishments of the corrupt rings which infest the Capital. The directory, with "O. E. Babcock, President," is a powerful combination; bold, imperious, and defiant, and will not fail to seek the destruction of any man who may uplift his hand against their wrongs and usurpations. Then to the defense of right and condemnation of wrong let every medical man throughout this land lend his aid. "Mene! Mene! tekel upharsin."

A CITIZEN OF WASHINGTON.

DUGANSVILLE, TEXAS, Aug. 4, 1877.

Dr. E. S. Gaillard:

Dear Sir,—I notice an article in the July number of your Journal censuring the County Examining Boards of this State from a graduate of Rush Medical College, and reflecting very seriously upon the justice of the Boards. His failure is no criterion to judge by. The object of the law is this: For years Texas has been overrun with empirics, until the title of Doctor had become almost synonymous with trickery and falsehood. The honorable men in the Profession here desiring to restore the ethics of medicine to a standard of purity, prevailed upon their representatives to pass this law; and although in operation but a short time, we can already see its beneficial results.

If in this instance the party applying did not think he received justice, the Board that examined him would have appointed three others to fill their places, and if he then failed he could have been examined by any Board in this broad State, and a certificate from any one of them entitles him to practice in any portion of the State. The fee charged is simply to defray expenses, and I doubt very much if the receipts of any Board from the examinations pay half their expenses while engaged in that way. We claim to have as honorable men in the Profession here as elsewhere, who are striving to elevate, not lower, the dignity of the Profession in the eyes of the people. The charge that the law was designed to give physicians here a monopoly is too preposterous to be entertained from personal knowledge. There are frequently admitted by these Boards even men who have only taken one course of lectures, and frequently those who have never attended lectures at all. Of course there are bound to be failures, and our Rush College friend may have failed through incompetency; for it is a sad truth, that it is not every graduate who is competent to practice physic. Yours truly, G. S. FODLE, M. D.

PROCEEDINGS OF SOCIETIES.

"Etsi non prosunt singula, juncta juvant."

American Gynæcological Society.

Battey's Operation—Removal of the Ovaries.—Dr. Robert Battey, of Rome, Ga., presented the claims of his operation and submitted the following propositions:

1. In those cases in which there is absence of the uterus, and in which life is injured and health destroyed by reason of that deficiency, the removal of the ovaries is at once possible and the only means of permanent relief.

2. In cases in which the uterine cavity or the vaginal cavity is obliterated and can not be restored by surgery, if grave symptoms be present, the removal of the ovaries becomes the

last and only resort, and may be possibly invoked in the case.

3. In cases of insanity and severe epilepsy depending upon uterine and ovarian disease, the operation is justifiable as a last resort, and one to be employed after all other means of cure have utterly failed.

4. In cases of long and protracted physical and mental suffering dependent upon nervous and vascular conditions and perturbations which have resisted all means of cure, the justifiableness of the operation is to be conscientiously considered by the practitioner in each case.

Dr. Trenholme, of Montreal, added a fifth indication for the operation; namely, those cases in which severe and exhausting hæmorrhage occurred in connection with the menstrual periods, and which resisted all forms of treatment. The Doctor then gave an account of the two cases in which he had performed the operation. An account of them can be found in the first volume of Transactions of the Society. He endorsed Dr. Battey's operation, and believed that it was justifiable in the instances to which Dr. Battey had referred, and also in others.

Dr. Peaslee, of New York—Mr. President, as I shall feel it my duty to criticise as well as commend the operation, I can not begin what I have to say without expressing my admiration and respect for the author of this operation in taking the course he has with regard to it.

The question is, is there a field for the operation called Battey's operation? I can say at the outset I adopt fully Battey's first two conclusions. The others I should adopt with some modification. There is a proper field for this operation, and I regard it as a great advance in surgery.

In order to make my ideas clear upon the subject, I shall divide the cases in which the propriety of the operation is to be considered into two classes:

First. Those women who have no vice of conformation at all; and

Second. Those who have some abnormal development.

First, then, with reference to those who have a perfectly abnormal development. In the first place, I do not think it a proper field in any case of this kind. In women who have

neared the period of the menopause, we had better wait than to incur the risk of an operation of this kind. In that class of cases, then, I would reject the operation. That is a general proposition.

Secondly, confining my attention to those women who are under forty years of age, this limitation is one of convenience, I should say. I would not perform the operation for mere ovarian pain. For we have first to ask, how severe is that pain? Is it not exaggerated? Above all, we have to ask, is the woman in the habit of eating opium? There is no habit so easy to be acquired as that of taking opium under these circumstances, and the question arises, no matter how severe the pain is apparently, is the pain actually dependent upon the condition of the ovaries, or is it due to the peculiar condition produced by the opium, and arises because the woman has not had her usual quantity of the drug? The formation of the opium habit is more common in connection with ovarian irritation than with any other condition.

With regard to the first class of cases, I wish to say that if the mind begins to fail, and we can believe that it is the present condition of the ovaries which causes that progressive failure, I believe it is our duty to interfere and remove the ovary or ovaries.

In considering the other class of cases I shall have but little to say, because Dr. Battey has covered that ground himself.

If the woman has a vice in conformation, such as no vagina or uterine cavity at all, and still has ovaries and a menstrual molimen occurring nearly every month, always attended by severe pain, and progresses until the mental faculties begin to be affected, we have a clear case for the operation. In such cases no surgical operation can be performed by which she can be made to menstruate normally, and yet she possesses ovaries which evidently will ruin her in time, perhaps make her epileptic, perhaps idiotic, and if no remedies can be used which will remove the symptoms, even palliatively, I should consider it my duty to remove the ovaries. It is upon that principle that I operated in the case already published in the first volume of our Transactions.

We have then, Mr. President, a field for Battey's operation, and I have endeavored to define, according to my opinion, just what are its boundaries.

Dr. Peaslee then described the mode of operating. For himself he should prefer laparotomy, as in his former operation.

Dr. Parvin, of Indianapolis, remarked that he had never performed the operation, but that it had seemed to him there were some important questions involved which must be settled before it could receive a general professional endorsement.

(1.) Will menstruation certainly be arrested by removal of the ovaries? Some had advocated the theory that menstruation occurred independently of the ovaries, and it was in view of that that the question was made. Neither Dr. Battey nor himself accepted such a view; still it was a proper question.

(2.) Was the operation possible in some of the conditions in which it was advised, where the organs were surrounded by the products of inflammation, etc.?

(3.) Had the mortality been such as would not make us hesitate with regard to its performance.

Dr. Goodell, of Philadelphia, remarked that he endorsed Dr. Battey in most of his statements. He, however, thought there was danger of the operation being abused.

Reference was then made to two cases in which he had advised the operation, and yet the remarks of Dr. Peaslee regarding neuralgia had rather staggered him regarding its propriety. Still he could not help thinking that with the removal of the ovary (a prolapsed one) he should remove the cause of the trouble.

Dr. Skene, of Brooklyn, remarked that there could be no doubt in the minds of the Profession as to the position of Dr. Battey himself on the roll of honor, if there were any doubt as to the position of his operation.

In conclusion he remarked that time and more operations, carefully recorded by judicious, conscientious surgeons, were needed before we came to a final decision regarding this most important and interesting operation.

Dr. Noeggerath, of New York, remarked that the same operation performed by Dr. Trenholme had been performed already

twice under the same circumstances by Professor Hegar, in Germany. The two cases were very peculiar. The indications for the operation were the same in both cases; severe hæmorrhage from an intermural, partly subperitoneal, fibroid, which could not be controlled by any means known to science. Professor Hegar considered the operation of normal ovariotomy so much less dangerous than the operation for the removal of the uterus, that he preferred to remove both ovaries in both cases. Both operations were performed last year. In one instance, at the next menstrual period, a severe hæmorrhage occurred, but since that time there was no menstruation. The patients were actually cured of the symptoms for which they were treated. He therefore considered the operation of normal ovariotomy as admissible in cases in which the fibroid could not be removed by the larger capital operation, and which certainly was more dangerous. We were not yet in a position, however, to give our judgment, and all that had been said in the course of the discussion had been mostly in the way of conviction. It remained for us to go on making careful observations in the same field. He agreed with the remarks of Dr. Peaslee entirely, and believed the field for the operation would be enlarged in an exact ratio as the operation became less dangerous. He disagreed, however, with Dr. Peaslee that the operation would be less dangerous if performed by the ordinary suprapubic section. From his experience the danger from peritonitis increased with every inch the wound was removed from the labia. His advice, therefore, would be to perform the operation, in all these cases in which the ovary was to be removed, through the vagina. He would suggest to Dr. Battey that he could render his operations less dangerous by opening the cul-de-sac with an instrument which made no wound. It could be done with a large trocar with a round point, and if that did not give sufficient room the instrument could be followed by another which dilated the tissues. In such an operation there was no hæmorrhage whatever, and no danger.

Dr. Battey remarked that he felt nearly overwhelmed by the kindness manifested by his brethren, and that he had always relied upon the everlasting truth for his justification before the

medical world. With regard to the amount of suffering which the patients had, it was an extremely difficult thing to be decided, and so with regard to insanity, hæmorrhage, etc., and the whole question resolved itself into one of conscience on the part of the physician. It was impossible to give any sharp and well-defined lines for guidance. With reference to neuralgia of the ovaries, he agreed with Dr. Peaslee in what he had said upon that subject. With regard to the removal of the ovaries, he believed that one should not be condemned until we were prepared to condemn both. With reference to the mode by which the ovaries should be reached in view of peritonitis and adhesions, he had been of the opinion that the vaginal route was to be preferred, and had selected it in all his cases, but he was now prepared to say that that opinion should be reviewed. The ideas of Dr. Noeggerath regarding the sensitiveness of the peritoneal sac Dr. Battey regarded as correct. If, however, there was reason to believe that extensive adhesions were to be encountered, the abdominal route was to be preferred. With reference to Dr. Parvin's question concerning the arrest of menstruation, it was to be noticed that he had not used the word menstruation at all. It was a matter of indifference to him whether menstruation was affected or not. He performed the operation for the purpose of removing the nervous and vascular phenomena which were destructive of life, health, and happiness, and integrity of the intellect. He cared not whether the woman menstruated or not prior or following the operation. With reference to Dr. Noeggerath's suggestion concerning the use of the trocar and dilating the opening to avoid hæmorrhage, Dr. Battey remarked that he had performed his operation through the central line, making his incision with the scissors, and removing the ovaries by means of the écraseur, and that the loss of blood had been very small; sometimes there had been nothing more than a mere oozing from the incision.—*American Journal of Obstetrics.*

CHEMISTRY AND PHARMACY.

"Diruit, ædificat, mutat."—Hor.

How to Deprive Iodine of its Stain.—Add a few drops of carbolic acid to the tincture and it will not stain; moreover, the tincture is more efficacious and its action more certain. M. Boggs recommends the following formula for use in injections: Alcoholic tincture of iodine, 3 grammes; carbolic acid, 6 drops; glycerine, 30 grammes; distilled water, 150 grammes.—*Ex. Am. Jl. Med. Sciences.*

Glycerine as a Lubricant.—Chemically pure glycerine, free from water, is recommended as a lubricant for small machines and machinery parts where common oils and fats turn acid or hard, and so clog or smear. Glycerine is of particular suitability for sewing machines, as any accident with it is of less consequence than with oils which soon become dirty.—*Boston Jour. Chem.*

Glycerite of Kephaline. By Charles G. Polk, M. D., Phar. D.—I employ the name of "Glycerite of Kephaline" to designate a solution of cerebrates or brain hypophosphites in glycerine acidulated with hypophosphorus acid. So soluble are these cerebrates, that they will dissolve in nearly their own weight of glycerine. I make the solution represent the following formula: Cerebrate of ammonium, 8 parts; cerebrate of potassium, 5 parts; cerebrate of calcium, 8 parts; cerebrate of sodium, 5 parts; cerebrate of magnesium, 3 parts; glycero-hypophosphorus acid, 5 parts; cerebric acid, 5 parts; pure glycerine, 60 parts.

These cerebrates may be isolated by several processes. I obtained them by dissolving protagon, prepared after Liebreich's method in terchloride of carbon, filtering, and precipitating the cerebrates by running down the temperature. Ten pounds of protagon will yield about one pound of the cerebrates, and make three pints of the Glycerite of Kephaline. Cerebric acid may be obtained after Frémy's method. It will thus be seen that the Glycerite of Kephaline does not contain the phosphates and

phosphites of the brain, and is not identical in its constituents with protagon, which embodies these. It is also a much more concentrated preparation than liquid protagon, which contains five parts of the calcium salts, three parts of the potassium salts, four parts of the magnesium salts, half a part of iron cerebrate, half a part of manganese cerebrate, and three of the sodium cerebrate.

As a remedial agent it is evident that it must be far more efficient than protagon, or a combination of all the brain phosphoid constituents. Clinical experience seems to justify this view. The testimony of a large number of physicians certifies as to its efficiency, and its favorable reception by the Profession seems to assure it a permanent place in the list of therapeutics. The dose is about ten to twenty drops, repeated four or five times daily. The properties are those of a nutrient tonic; and it seems to be especially adapted to diseases of debility, principally wasting diseases. I rely upon it almost entirely in the treatment of tubercular phthisis. I also have great confidence in it in loss of memory, impaired brain power, whether induced by sexual excesses, severe mental labor, persistent grief, or inordinate passions. As a tonic in female diseases I have had good success in its use. In neuralgia it has given relief in several cases after everything else had failed. There is nothing secret or proprietary in its character.—*Druggists' Circular.*

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

"Judex damnatur cum nocens absolvitur."

Aiken as a Health Station. By W. H. Geddings, M. D., of Aiken, S. C., Member of the Medical Association of South Carolina, American Medical Association, and of other Medical Societies. Charleston, S. C.: Walker, Evans & Cogswell. 1877.

This pamphlet merits at this season special mention. It is in October that those needing a warmer climate are told to go South; their physicians and themselves forgetting that at the South there is every diversity of climate; sea side; riparian; lacustrine;

mountainous; of high atmospheric pressure and low; dry and damp; moist; cold; warm; etc., etc. And yet physicians of sense otherwise direct their patients "to go South." As information is needed in regard to all localities "South," it is needed in regard to Aiken? This pamphlet gives all that can be desired. Aiken, on the railroad from Charleston to Augusta, is fully 600 feet above the sea. The soil is sandy. The drainage good. There is no malaria. It is surrounded by a pine forest, rendering the atmosphere balmy and pleasant. Sudden transitions in temperature are almost unknown. Exercise may be freely taken in the open air throughout the winter. The mail facilities are complete. The society excellent. The fare all that can be desired. The isothermal line is that of Cadiz. The mean annual temperature 62.50°. The mean winter temperature 48.53°, or one and a half degrees lower than that of Nice; approximating most closely the winter mean temperature of Riviera. The mean diurnal variation of temperature in winter not more than 12.65°. Indeed, in equality of temperature, it is only surpassed by the climate of San Diego. The air is especially dry; steel instruments do not rust; matches do not soften; gloves do not spot, nor does leather mould. Moss will not grow. The mean relative humidity is 64.04°; this is better than the record at St. Remo, Mentone, Nice, Palermo, Riviera, or Madeira; the world-renowned winter stations for invalids. There is but little dew at any time, and when this is seen to any extent it is soon absorbed by the porous, sandy soil. The inhabitants live during the warmer months in the open air, and even in March one may sleep on the piazza without fear. Rheumatism is seldom or never seen. Fogs are exceedingly rare, and seldom last more than a few hours, being thoroughly dissipated by the sun. The annual rain-fall is about 46 inches; that of winter not more than 9. Catania, the great Sicilian resort, has an annual rain-fall of 78 inches. Cases of bronchitis with marked secretion do well in Aiken, so also do cases of consumption in the first and second stages; malarial cases, cases of dyspepsia, spanæmia, convalescents from pneumonia and pleurisy, typhoid fever, etc., etc. Laryngeal diseases, cases of dry bronchial cough, Bright's disease, eye diseases, etc., do badly.

It will be seen that the advantages of Aiken are extraordinary; the comforts superior; hotels good; society excellent. Added to all of these attractions there is a most excellent medical staff. Dr. W. H. Geddings, the author of this most excellent and reliable brochure on the climate of Aiken, has given especial attention to the diseases benefited by this locality, and, apart from this, he is by the best medical training both at home and abroad, and by a broad and general culture, especially fitted for the charge of the many patients who go, and should go, to this most excellent winter home for consumptives.

Alcohol as a Food and Medicine. A paper from the Transactions of the International Medical Congress, Sept., 1877. By Ezra M. Hunt, A. M., M. D., President of the Section of the American Medical Association on State Medicine and Public Hygiene, etc. New York: National Temperance Society and Publication House.

The Cure of Rupture, Reducible and Irreducible; also of Varicocele and Hydrocele, by new methods. By George Heaton, M. D., member of Massachusetts Medical Society, etc. Arranged and edited by J. H. Davenport, A. M., M. D., Harvard. Boston: H. O. Houghton & Co. 1877. Pp. 196. San Francisco: A. Roman & Co.

Myelitis of the Anterior Horns; or Spinal Paralysis of the Adult and Child. By E. C. Seguin, M. D., Clinical Professor of Diseases of Mind and Nervous System in the College of Physicians and Surgeons, N. Y. New York: G. P. Putnam's Sons. 1877.

Transactions of the Pathological Society of Philadelphia. Vol. VI., from Sept., 1875, to July, 1876. Edited by James Tyson, M. D., Professor of General Pathology and Morbid Anatomy in the University of Pennsylvania. Philadelphia: J. B. Lippincott & Co. 1877. Pp. 157. San Francisco: A. Roman & Co.

Retarded Dilatation of the Os Uteri in Labor. By Albert H. Smith, M. D., Philadelphia.

NOTE.—For want of space, Reviews and Notices of these valuable works must be postponed.—E. S. G.

MISCELLANEOUS.

"Non omnes eadem mirantur ament que."

Foreign Bodies in the Stomach.—L'homme à la fourchette, so famous in Paris a year or two ago, is distanced by a man in Australia now undergoing imprisonment for being unable to restore a gold ring which he had swallowed, belonging to the prosecutor. He is being treated by the visiting surgeon of the jail with the view of making him disgorge a large steel Albert chain and a common brass ring. The chain can be distinctly felt at the bottom of the stomach, and the prisoner states that it is now nine months since he swallowed it, and it is the only one he has had any difficulty about. He says that he has had two pounds weight of jewelry in his stomach, and has had watches there as long as twenty-four hours. The jailor has a collection of objects, such as Albert chains, pen-knives and rings, which he has procured by making him vomit by emetics. The prisoner is an intelligent young man of twenty-three.—*Med. and Surg. Rep.*

Case of Ovarian Tumor in a Child.—Professor McGraw, of Detroit, reports a case of ovarian tumor in a child twelve years of age. The enlargement of the abdomen was first noticed in May, 1876, and it rapidly increased. The patient had no pain except from distension, but had a constant diarrhœa and was short of breath. In August, 1876, the abdomen measured thirty-four inches in circumference at the navel. There was universal abdominal fluctuation, and no tumor could be made out by palpation. The patient was tapped and three gallons of bloody serum were withdrawn. Microscopical examination of the fluid revealed blood-globules, but no granular corpuscles. After tapping, the dullness on percussion became limited to the lower and central part of the abdomen, but no tumor could be mapped out by palpation. The fluid rapidly reäccumulated, and in four weeks' time the child measured thirty-six inches around the navel. On September 12th the abdomen was opened and the fluid found to be largely ascitic. The tumor, which was as large as the head of a new-born child, was found lying on the

vertebra. When grasped, the bloody serum which it contained spouted out of the hole previously made by the trocar. The tumor consisted of a very thin sac containing a bloody fluid. The pedicle was secured by a clamp. The patient made a good recovery without a single drawback, and is now entirely well. —*Toledo Med. and Surg. Jour.*

Chambers Street Relief Hospital, N. Y.—In 1876, with only a capacity of twenty-six beds, there were received in this hospital six hundred and twenty-two ambulance cases. There is attached to each ambulance a surgeon, who always accompanies it when it goes out, and who is appointed for this purpose alone.

The Lock Hospital.—At the Lock Hospital for women there are about a hundred and fifty patients; but little of novelty was presented. The mercurial treatment is employed, and inunction fully used. A patient was shown who was being treated by subcutaneous injection, and for this purpose a new preparation is under trial; it is a solution of mercurial bichloride in peptine. It is said not to precipitate, and not to cause abscesses when used hypodermically. It certainly has not produced any unpleasant effect in the patient brought forward, who had been injected daily for several days.—*Lancet.*

King's College Hospital.—After extirpating a couple of epitheliomatous tumors at this hospital, Mr. Wood was kind enough to show a very interesting case of aneurism treated by electrolysis on a new plan. After numerous trials on other cases with not very satisfactory results, Mr. Wood conceived the idea that motion of the blood through the vessel hindered its coägulation, on the same principle that running water freezes with difficulty, and that by compression above and below the aneurism, shortly before and during the application of the galvanic current, a perfect coägulum could be produced.

The case under treatment was aneurism of the right iliac and right femoral arteries. Other means being tried without success, there remained only a choice between tying the common iliac and electrolysis, and the use of the latter was determined on. Pressure was then made above and below the tumors until

pulsation ceased, needles were inserted, and a current from sixty cells passed. The effect is described as almost magical, being the complete obliteration of the vessel, so thorough, indeed, that sphacelation of the leg resulted and amputation had to be performed. The patient is doing well.—*Atlanta Med. and Surg. Jour.*

MEDICAL NEWS.

'Nulla dies sine linea."

A new idea seems to have possessed the minds of the Board of Governors of the New York Hospital. After spending a great amount of money in the construction of their building, they have just found out that the present want is not a hospital for the poor, but one for the rich; they have therefore made a rule that no free patient shall be admitted into the hospital. Since the rule has been enforced the census has run down from over one hundred to only fifty patients. This action of the Board is giving rise to considerable criticism.—*Boston Medical and Surgical Journal.*—— Dr. W. R. Whitehead, of Denver, Colorado, has removed to Paris, France, to practice in that city. Dr. W. is a graduate of the University of Paris.——Yellow fever rages with unabated violence at Fernandina, Florida.—— Dr. James E. Morris of Bellevue, Texas, seems to have discovered what so many have in vain looked for; such a solvent for quinine that this may be used efficiently and harmlessly with the hypodermic syringe; he dissolves the bromide of quinine in alcohol, and so thoroughly that each minim of the solution contains one grain of the salt. No irritations or abscesses are produced by the injections, and the alcohol prevents the development of all microscopic organisms in the preparation.——Dr. George McLeod, Regius Professor of Surgery in the University of Glasgow, Scotland, has been appointed one of the surgeons to the Queen, filling the position vacated by Lister. —— Lying-in hospitals have produced such great fatality in parturient women

that in many medical centres they are being abandoned.——Liebreich cautions the Profession against the use of the hydrate of chloral sold in cakes; that prepared in the form of crystals only is pure and safe.——The class of the Louisville Medical College is excellent, both in numbers and material. The foul and false libels uttered persistently against this Institution have proved to be like "Arab chickens; they have gone home to roost."——Dr. C. W. Wright, Professor of Chemistry and Toxicology in the Louisville Medical College, died of a complication of disorders September 25th, 1877. Chemical teachers desiring to occupy the vacant chair will please send their letters of application to the editor of this Journal.——The University of Upsala has just celebrated its four hundredth anniversary.——"The Physio-Eclectic Medical College" of Cincinnati, Ohio, furnishes diplomas at prices ranging from $25 to $100. Recipes for cancer, "fits," etc., etc., are sold for any sum from $200 to $1,000. A first-class swindle.——Who has heard anything of Cleopatra's needle, which left the shores of Alexandria for the banks of the Thames?——The Jefferson Medical College of Philadelphia has inaugurated and opened its new hospital.——The Profession will be sorry to learn of the illness of Professor Paul F. Eve, and be glad to wish him an early and complete recovery.——Those who have a mania for centralization of power in government, and who would place all they possibly can under control of the General Government, should learn that the worst managed hospital on this continent is the Government Hospital for Women in Washington, D. C.——This is news enough for this number, but it will be additional news to many that this Medical Journal actually needs money for its management and maintenance; perhaps the most novel sensation that many of the subscribers could experience would be that produced by their remitting the amount due for subscription. Those who have done so declare their thorough appreciation of the old aphorism, that "virtue is its own reward." Doctors all know how to cure a *remittent* fever, but what the editor of this Journal desires to learn is, how to produce a fever of this kind; and to produce it especially among the subscribers.

EDITORIAL.

"Nullius addictus jurare in verba magistri."—Hor.

Higher Medical Education—Optimism or Utilitarianism.—The inaugural address delivered at the recent opening of the exercises of the Medical Department of the University of Pennsylvania, with other papers based upon the same subject, viz., a higher medical education, has served to attract not only professional but secular attention to this interesting and most important question. It is certainly a question which concerns every physician in the conscientious discharge of his duty; and while many medical men regard, or affect to regard, it as a problem whose relation is of interest or importance only to medical schools, no physician who examines the subject, even cursorily, can fail to see that it is one upon which he must voluntarily or involuntarily both speak and act; and that his speech and action must necessarily be not only frequent, but, to be just to himself and others, must be based upon careful examination and mature reflection. Unless a medical man deliberately determines to admit to himself and to say to others that, foolish as it may appear, he has no opinions whatever on the very subject which his life-work represents, it is manifest that he must both form and express opinions upon the forces which have made him what he claims to be, a physician; and that to form and convey his opinions, he can only do so, honestly, by possessing himself faithfully of information necessary for this purpose; information essential for the formulation of his premises, and for the defense of his own conclusions. And if there be that singular anomaly, a physician who does not, from inherent reasons, feel a practical interest in the cause of medical education, one who does not, for his own reward and in support of his personal and professional position, care for the welfare and development of medical education, the question is gravely asked of such an one, if he does not believe that he owes some debt of gratitude to the power which has given him his title, his position, and his bread; and whether on this account, if not on his own, all which concerns the life and development of that power merits his earnest and honest attention? It is diffi-

cult to realize that any one, after thus viewing this subject, can be indifferent in regard to it.

Assuming, therefore, on the part of the readers of this Journal a warm and deep interest in all the operative forces which chiefly make the physician, and among these forces chiefly the educational force, it is proposed to examine some of the questions involved in the subjects forming the caption of this paper; viz., the higher medical education, with those demands in regard to it which are expressed by the terms Optimism and Utilitarianism. The term optimism being intended here to represent the views of those who demand the highest attainable erudition in the person of the recent medical graduate; while by the word utilitarianism is expressed the wants of those who, appreciating fully such erudition, seek rather the attainment, by the graduate, of that form of education most generally useful in its application. Every one sees in his experience types or representatives of these classes among medical men. There is the physician who, after having enjoyed a thorough University education, with all the advantages of the classics, of modern languages, of the higher mathematics, of physics, philosophy, and thorough literary culture, has had superadded a thorough drill in all of the general and collateral branches of a medical education; there is the practitioner who, without such antecedents, indeed without even the meagre advantages often of a high-school training, has by hard study made himself thoroughly proficient in practice, surgery, and obstetrics, abundantly able to meet successfully all of the demands made upon the general practitioner. The first is the realized demand of optimism in medical education; the last is the type of utilitarianism in medical training. There will be, therefore, no misapprehension of these terms on the part of the reader.

With this distinction clearly appreciated, there arises one of the most important questions that may be propounded to the Profession; viz., which is the demand to be now made in regard to medical education, that of the optimist or that of the utilitarianist?

There can be no question as to the fact that there underlies the proposition for a higher status in the medical man the same

principle which underlies the proposition for a higher status in every other workman; the ability on the part of employers to recognize this higher skill, and to value and sustain it. The paintings of Titian, of Paul Veronese, or of Leonardo da Vinci were demanded and valued by their cultivated countrymen, but what would have been their fate if sent to the barbaric tribes of Europe? Canova, and Hart, and Hiram Powers, by their triumphs in sculpture, gratified and glorified their countrymen, but the Nez Percés or the Sioux would value far above these triumphs the rudest pottery images of the Aborigines. Send what is claimed to be the perfect incarnation of medical erudition (the modern Boston doctor) to the Frog Level of Bret Harte, where the boot is admired only when all of it is exposed, where the tooth-brush and the comb, the barber and the schoolmaster are repudiated, and the medical pride of Boston would be discarded for the loudest empiric and the most absolute charlatan. The power of appreciation, then, that is the demand, must always precede the supply. This is not only true in trade, but it is equally true in art and in science. It is not only true in regard to barbaric and ignorant races, but it is equally true and has always been manifested even among the most polished nations of the earth. Where society is most cultivated and scientific, and therefore most liberal and most discerning, the man of science, if in advance of his generation, is ridiculed, repudiated, and rejected. Did not the most profound scientist of France ridicule the proposition to propel vessels across the ocean by steam? Did not Daguerre receive the abuse of the most polished modern city because he claimed to be able to draw pictures with the sun? What was the punishment of Galileo when he claimed that the earth moved? Did not Morse stand for years in vain knocking at the doors of the American Congress begging for an appropriation whereby he might demonstrate his ability to transmit thought by electricity; and was he not ridiculed for his claim? The wisest fail to appreciate or employ those in advance of them; and those less wise can not constitute any exception to the general law. There must be the power of appreciation, the demand, to authorize the supply; and supply in advance of appreciation or demand entails risk always and ruin often.

It requires a highly cultivated people to appreciate and sustain a highly cultivated physician. In uncultivated communities, the erudite and profound physician is often neglected and rejected for the blatant charlatan and the most ignorant fossil. The Profession can supply, through its educational resources, physicians amply able to meet the demands of all among whom they practice, able to meet the exigencies of the general practitioner; and the Profession does now accomplish this work; but it is demanding, manifestly, too much to demand more than this; to furnish medical men whose acquirements, literary and professional, are in advance of the demand for them.

If the physicians of this country were by some adequate force suddenly transformed into practitioners of profound literary and scientific erudition, there would inevitably and manifestly be these results; such erudition would be in advance evidently of the demand for it; such medical men would rarely be appreciated; and what is far worse, they would lose all sympathy, intellectual and even social, with those among whom their lot was cast. How long would Sims, or Wells, or Virchow, or Langenbeck practice in the wilds of Nevada or Idaho? Or how long would practitioners now happy and contented remain in their field of labor if intellectually, scientifically, and professionally so elevated as to be no longer in mental and social sympathy with their employers and friends? How many communities would thus lose their physicians?

When, therefore, optimism in medicine is noisily sought and demanded, is this demand based (unconsciously perhaps) on the vanity and selfishness of the Profession, seeking thus its glorification and elevation, or is it prompted solely by a desire to secure the welfare of the people? If all physicians be brought up to the status demanded by the optimist, would they, could they remain in peace and contentment, where many now peacefully and contentedly labor? And if they could not there labor, would such communities be benefited or injured?

Harvard seeks optimism in medical education; so, recently, does the University of Pennsylvania. The College of Physicians and Surgeons, Bellevue, the Jefferson Medical College, the University of Virginia, etc., seek what they have always

sought, to secure not profound medical erudition subsequent to a high and demonstrated literary culture, but to furnish to the medical student that form of medical education most useful in its application; they make utilitarianism the basis of their system of instruction. A system which no one pretends to doubt can secure (as it has secured) for the physician that sound and practical instruction which makes him abundantly able to successfully meet all the demands and exigencies of the general practitioner.

But in addition to all of these considerations, there are others equally influential and controlling. While in older countries scientific erudition secures to its representative such position and honors as constitute a sufficient reward for the labor of its acquirement, no thoughtful man can fail to see that in this country, which (in spite of its noisy centennial) is but an infant in the family of Nations, such erudition may be accorded a fair degree of respect, but that it is wealth respectably acquired to which is rendered an almost universal allegiance. If, therefore, those seeking admission into the Medical Profession see, as they must see, that by that system of medical education termed utilitarian, they can acquire both the status of the physician, and competency, if not wealth, they will select those colleges which, representing this system of medical education, afford them the means of accomplishing, with the least labor and the least sacrifice, these double results. Add to these reasons the further patent fact, that it is not medical erudition which usually brings practice and wealth, and it is evident that students will not, as a rule, covet erudition, or enter those colleges which expensively and slowly make this the object and basis of instruction.

Optimists in medical education may, therefore, establish and eulogize medical colleges offering (as is claimed for them) extraordinary advantages and exceptional results, but in the face of the facts here given, it is not reasonably to be expected that such colleges will be sustained. Such may be unwelcome information to many, but

"'Tis true, 'tis pity, and pity 'tis, 'tis true";

and because it is true, it will receive the weighty consideration of the practical and judicious men of the Profession.

While, as a physician, the writer can not but express the hope that Harvard and her followers may achieve the highest success; as an editor, he can not but express the opinion that they will meet with comparative failure and grievous disappointment.

The optimism sought by them in medical education, logically traced to its results, must inevitably deplete the country of its many able practitioners and overcrowd cities and towns with those vainly seeking bare shelter and support; a condition over which even now citizens of the country lament, and against which the physicians of popular centres already protest.

Each reader may then well ask himself which system of education he would advise and sustain; that which seeks an ideal optimism for its standard, or that which has for its object a practical utilitarianism?

Portrait of Dr. McGuire.—The Profession will be pleased to receive in this number the excellent steel-plate portrait of Dr. Hunter McGuire, of Richmond, Va. The likeness is excellent and the plate is equally good. A biographical sketch of Dr. McGuire, by Dr. Manson, will be found in this number. The eulogy contained in it is chaste and just. The same sketch and portrait appear simultaneously in the October issue of the "Virginia Medical Monthly," to the courtesy and liberality of whose editor, Dr. Landon B. Edwards, the subscribers to the "Richmond and Louisville Medical Journal are indebted for these contributions.

Dr. J. Marion Sims.—It is said that Dr. Sims will not return to this country, but will make Paris his future home.

The Delay of this Number has been caused by the increased number of its pages. Inasmuch as the subscribers are the gainers by the delay, there can be no doubt of their being satisfied with this explanation; though it is pleasant to say, that even when there is no such excuse for delay of issue, they have been uniformly kind and considerate.

RICHMOND AND LOUISVILLE

MEDICAL JOURNAL.

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ORIGINAL COMMUNICATIONS.

"Qui docet discit."

ART. I.—*Stricture of the Urethra. When and how shall we Perform Internal Urethrotomy?* By CLAUDIUS H. MASTIN, M. D., L.L. D. (Univ. Penn.), Mobile, Ala.

All operations and methods of treatment which have been proposed or executed for the cure of urethral stricture have had in view simply the reëstablishment of the normal calibre of the canal, so that the urine could be voided easily and quickly, thus relieving the troubles of micturition, such as the stagnation of urine in the bladder and urethra, with its consequent catarrh of the bladder and suppuration of the urethra.

To this end we see various methods adopted, and in many instances with no definite principle involved, save opening a way for the free exit of the urine. For a long time the Profession seems to have been ignorant of the true nature of these contractions; little or no attention having been paid to the physiology of the urethra, and less care given to the physiological pathology, so to speak, of injuries of its mucous membrane. It has sufficed them to know that "a stricture" or "an obstruction" existed, and that all they were called upon to do was to dig out a canal through which the pent-up urine could find its way. It is then not astonishing to see so many methods of treatment in vogue, and to find that for their purpose the end which they hope to attain does fully justify, in their opinion, the means which they seek to employ. It appears as if they

are entirely indifferent as to what method they should call into use, so that the stricture be opened and the urine allowed to escape.

With a great many a stricture is "a stricture," and it matters little or nothing to them whether it be permanent or transitory; whether it depends upon a deposit of organic material in or around the walls of the urethra, with no tendency to disappear by any natural action or function of the body, or whether it be the result of local vascular inflammation or congestion which causes a temporary narrowing of some part of the canal; or possibly by inducing an increased muscular action of the voluntary or involuntary fibres surrounding the urethra, brings on an attack of spasmodic retention. The diagnosis is "stricture;" the treatment must be any method most available at the time! It seems to have been forgotten, in this affection at least, that we are unable to treat upon scientific principles any disease unless we fully appreciate its true nature; that before we can hope to master these troubles of the genito-urinary apparatus, we must at least comprehend the pathological state or condition in which the patient is when he presents himself, and then select the special treatment adapted to his particular case.

It would be far better were they to classify their cases, and know that soft strictures, non-organized deposits, yield readily to dilatation in one or another of its forms; that congestive or inflammatory contractions subside under the gentle application of the milder caustics, aided by rest and antiphlogistic measures, opium, hot baths, with the regular and systematic introduction of soft bougies; whilst those depending upon deposits of *organized retractile tissue* require something more, and this is almost invariably to be found in the *ultima ratio* of surgery—the knife!

It is necessary that we should investigate the physiological properties of strictures, and know that they control their treatment; that these properties determine the diminution of the calibre of the urethra and all the accidents which result; that the alterations of the urethra behind the stricture, after chronic inflammation of its mucous membrane, give rise to simple dilatation of the urethra, followed in turn by urinary tumors,

and eventually rupture of the canal with its consecutive urinary fistules. All these are the results of fixed laws, and these laws must be studied and understood before it is determined what treatment is to be employed. To fully understand and appreciate these laws, we must become acquainted with the investigations of Kolliker and Rouget upon the histology of the urethra, with the studies of M. Ollier upon the atrophy of its muscular fibres, and the revelations of the Guerins as to the physiological pathology of its mucous membrane. The experiments of M. Reybard with longitudinal wounds of the urethra, and the demonstrations of M. Landéta of spasm of the canal, have each and all become essential to the proper understanding of this subject. In the valuable contributions of M. M. Sedillot, Perrin, Gosselin, Phillips and many others of the French school, we find the ready text from which we are to learn the great principles involved in the physiology, pathology and therapeutics of the genito-urinary system.

It is not, however, my purpose in this paper to write a special treatise upon stricture of the urethra, one in which I shall enter into its pathology and classify its varieties, their diagnosis and the treatment applicable to each; but rather is it my intention to confine myself to those strictures which require operative interference for their relief, especially those which are due to an organized deposit of retractile tissue in and around the walls of the urethra, calling for *internal urethrotomy* as the proceeding most rational for their treatment.

Just here I may be pardoned if I state that I am no exclusive advocate or "enthusiast" upon any one special mode of treatment in these affections; but rather am I disposed to resort always to the mildest proceeding before I adopt any operation by the knife. I am free to acknowledge that where strictures require it, I am always prepared to use the knife; but when, according to my judgment, a stricture is not in a fully organized state and is not rebellious to treatment, I consider it the part of wisdom as well as justice to my patient that the case should be treated by dilatation in one or the other of its forms. Here it would be well to adopt the maxim of M. Auguste Mercier: "Dilate where you can, cut where you can not."

It may then be asked, how are we to decide whether the case be one for dilatation or one requiring an operation? The answer is plainly to be found in the following indications for internal urethrotomy—indications which are established and fully accepted by the leading authorities upon this subject.

With our present knowledge of urethral surgery, it is evident that there are only two methods by which uncomplicated urethral stricture should be treated, viz.: Dilatation, gradual and progressive, and urethrotomy. These are the only methods which offer, in the advanced state of our science, by their mode of action and their results, to fulfill the indications furnished by the physiological condition of stricture itself, and the physiological pathology, so to speak, of the injuries of the mucous membranes.

Dilatation seems to be successful in those cases only where the stricture is elastic and of feeble contractility; where the retractile tissue in its fibrous organization has not encroached upon the true wall of the urethra and is not limited in its extensibility. Urethrotomy, on the other hand, is imperatively called for in all those cases in which dilatation is contra-indicated; the two methods completing, as it were, the general therapeutics of urethral stricture—dilatation being a method of exploration of the resistance of the contraction, which in favorable cases may reëstablish the calibre of the canal, whilst in all those cases where such results are not attainable, then urethrotomy is indicated.

The first class of cases which demand this operation are those in which the physical resistance of the stricture is such that a bougie of large calibre can not be made to traverse the canal—dilatation reaches a certain point beyond which it can not be carried. The next variety are those where the canal rapidly regains its altered and contracted condition after the calibre of the urethra has been established by simple dilatation—strictures which have received the term *resilient*. In these cases nothing else than a full and complete division of the contracted portions will relieve the stricture.

Again, those strictures which appear to be easily dilated, but which, upon each and every introduction of a bougie there

follows a rigor with an accession of fever. In such cases to persist in a course of dilatation with the hope of effecting a cure, is only to provoke a reproduction of fever, and thus knowingly bring about the entire train of symptoms referable to urinary intoxication.

Another indication for urethrotomy is where we find spasm of the canal depending upon an irritable urethra, preventing the easy introduction of a sound into the bladder; *all the result of reflex nervous irritation due to contracted meatus.* This calls for an immediate debridement of the urethral orifice.

So also whenever we find upon a first examination dilatation to be impossible, or too slow in its action, we have an indication present which points to the necessity of urethral section. Such cases are generally the following: Traumatic injuries of the urethra, the result of falls upon the perineum; forced catheterization; rupture of the spasm, sometimes present in blenorrhagia, and known as "the chordee," and such like injuries. Here dilatation is rarely if ever capable of reëstablishing the calibre of the canal. Again, those cases in which the stricture is very close, and owing to the tortuous shape of the passage, it is difficult to pass an instrument; the simple introduction of a soft filliform bougie inducing violent spasm of the urethra as well as the stricture itself, followed oftentimes by complete retention of urine. In such cases the surgeon may sometimes, after repeated trials, aided by the hot bath, opium, etc., succeed in passing an instrument, but he can not hope for any success from dilatation; and as nothing is to be gained by delay, he should content himself by leaving the instrument as a "sonde à demeure" until the passage is sufficiently opened to admit the catheter staff of the urethrotome, and immediately that this is possible, proceed to perform the operation.

There is still another class of strictures which we are unable to treat by any other method than that of urethral section; they are those in which the urethra has been ruptured behind the site of the coärctation, and the tissues infiltrated with urine. Here the first indication is to arrest the infiltration; and how is this to be accomplished? Certainly not by leaving in the urethra a catheter to conduct away the urine; for as the tight-

ness of the stricture has been the prime cause of the rupture, it is not to be supposed that a sound which could be passed through the coärctation would be of sufficient size to drain away the urine; and even if it were, the irritability of such strictures is too great to tolerate the presence of the inlying catheter. In such a case there is only one rational procedure at our command, and that is urethrotomy; by which we open the urethra fully and thus permit not only the urine contained in the bladder, but that which has been infiltrated in the tissues, to drain away. It may, in addition to the internal section, become necessary in these cases to lay open the infiltrated parts, so that decomposing tissues may be expelled.

In those cases where we have dilatation of the urethra behind the strictured spot, or where we see urinary fistules, the result of such dilatation, passing into the state of ulceration with its consequent urinary opening, the dilatation shows that the strictured portion of the canal is so dense in structure that the urethral walls behind the coärctation are being altered in character from the continued pressure of the urine, as it is arrested in its free exit from the bladder; and also by the expulsive force which the bladder is forced to exert in discharging its contents. The urine now being constantly retained in this pouch, irritates the mucous membrane not only of the urethra, but of the walls of the stricture itself; and the result is, the stricture becomes so irritable that dilatation can not effect anything, and unless an early urethrotomy be performed, the urethral wall behind the obstruction must give way and urinary fistules be the consequence. Then again, after urinary fistules have been established, we can hope for no good result from dilatation; for it is only after a full and perfect opening of the strictured portion of the canal by urethrotomy that the urine will pass out easily without obstruction, and thus afford an opportunity for the fistules to heal rapidly without any further treatment. Such cases are among the most imperative indications for the immediate operation of internal urethrotomy. In this connection I desire to state that in my opinion, based upon rather an extended experience, there is no necessity whatever, when we are able to pass an instrument through the stricture,

to have resort to the operation of external section, which for so long a time has been considered by some of the most enlightened urethral surgeons a necessity in these cases—rather do I urge against it, thus preferring to be classed as "one of those extremists who assert that permeability to instruments necessarily contra-indicates the operation of external urethrotomy."

Another class of cases requiring urethrotomy, and in which resort should be had at once to the operation, are those in which during the treatment by dilatation, and in which the strictured part has not yielded, there supervenes the symptoms of urinary intoxication. Here we may, and doubtless will, find the urethra posterior to the stricture, as well as the vesical mucous membrane, with a desquamation of its epithelial covering, allowing the urine to become absorbed. In such cases, unless a free exit is at once given to the flow of urine, we will in all probability soon discover the internal organs becoming affected, and run the risk of losing our patient from the formation of metastatic abscess of the parenchymatous structure of the liver, lungs or kidneys. In such cases, even though there be organic disease of the kidneys themselves, I do not think the operation is contra-indicated; but rather is there a positive indication for surgical interference, because by such interference we may hope to mitigate if not cure the trouble by a sudden removal of the cause of the complication. Here an immediate resort to internal urethrotomy relieves the retention of urine both in the urethra and bladder, and opens up a way for appropriate lavements with which we are to wash out the materials which have been deposited, and from the absorption of which the urinary intoxication has followed.

It is almost unnecessary to add another indication, which is found in those cases where stricture is coïncident with stone in the bladder. Here it is evident we have not the time to temporize with dilatation to prepare the urethra for the passage of the staff in cystotomy, or the free and easy manipulation of the lithotrite, should we decide upon lithotripsy. In such cases we gain time by a full and free section *with the urethrotome.*

In conclusion of this portion of my subject, I may safely say I know of no contra-indications to the operation of internal

urethrotomy, save those impassable strictures through which it is impossible to pass an instrument, and even these under certain circumstances may require forced catheterization, to be followed in its turn by urethrotomy *from behind forwards*, rather than have resort to the more dangerous operation of external section, or l'boutonniere without a guide. Lastly, I believe it best to have recourse to internal section in all cases of stricture which depend upon a dense deposit of cicatricial tissue than to consume time in a fruitless attempt to destroy the same by any of the methods of dilatation.

When then an operation has been decided upon, it becomes necessary that we should place the patient in such a condition as will best enable him to stand the same; to evert the dangers of the operation by lessening the chances of uræmic intoxication, and as far as possible preventing the shock which is incident to all operations done upon the genito-urinary apparatus. These preparatory measures are of a two-fold nature, the first being to place the urethra in such a state that it will tolerate the presence of an instrument and permit the passage of a sound fully into the bladder. We must lessen the irritability of the urethra and prevent the spasmodic contraction of its muscular fibres, so that the urethrotome can pass easily through the strictured portion. It is rarely if ever necessary to place the patient under the influence of an anæsthetic, because the operation is not a painful one, or at least not so painful as to require the administration of either chloroform or ether.

Where there exists much urethral irritation—a condition which does not tolerate the presence of an instrument—the same can be overcome by the gentle introduction of soft bougies, gradually increasing their size every few days, until the sensitiveness of the mucous membrane is so blunted that an operation can be performed without trouble or much pain to the patient. In those tight strictures where we are unable to pass easily an ordinary conducting bougie, cases complicated with extreme irritability of the canal, much can be accomplished by passing an instrument armed with nitrate of silver down to the face of the coärctation and gently cauterizing the same. In many instances it will be found after this, within a few days, a small

filliform bougie can be passed, and when this has been accomplished it should be left for a few hours as a retained sound, when it will be seen that the stricture is opened enough to admit the conducting catheter of the urethrotome, and then we should proceed at once to accomplish the operation; for unless we take advantage of the ground gained, the contraction which has only been softened by the presence of the caustic and the inlying sound will speedily recontract, and the work of opening it will have to be again resorted to. As a rule, whenever urethrotomy has been decided upon, we gain nothing by a system of temporizing.

The second preparatory step, and not the least important of the two, is to place the bladder in such a state as to prevent its rapid contraction just at the moment of operation, thus forcing the urine through the urethra when the knife traverses the strictured portion. We know that whenever there is any obstruction to the passage of the urine, the bladder is obliged to contract with more energy to effect an evacuation of its contents, and if this obstacle remains for any length of time, the consequence is the vesical walls become atonied from over-action, and there is always left a residual amount of urine stagnant in the bladder. This over-distension is almost always the sequence of organic stricture which impedes the evacuation of urine, the resistance to its passage being greater than the expelling force. After each act of micturition, therefore, the bladder is incompletely emptied, and the residual urine maintains an amount of distension which is relieved only from time to time by strong expulsive efforts, or by the relaxation which comes on during sleep. Now to control the vesical contraction and to prevent the flooding of the urethra at the moment of the operation, we must always cause the patient to pass his urine just before the operation is begun; or if this be impossible, owing to the closeness of the stricture, it will be best to empty the bladder as completely as possible through a small gum catheter, and, at the moment of operating, see that the thighs are reposing upon their posterior faces, thus avoiding compression of the bladder by the abdominal walls.

Some authors (M. Gosselin, for example), thinking to avoid

urinary intoxication by modifying the nature of the urine and rendering it less toxic by dilution, advise that the patient should drink largely of diuretic decoctions twenty-four or thirty-six hours preceding the operation. It is quite evident that in those cases where the stricture is not too close, and where the bladder has force enough to expel its contents without pain in micturition, this may offer some advantages; but where there is a close, tight stricture, and the bladder not in a condition to force out the superabundant urine, the effects must be very different. Here the augmentation of the quantity of fluid secreted under the influence of large draughts of diuretic mixtures tends to distend the bladder, and thus increases the retention of a large quantity of urine by reason of the fact that the bladder is not in a condition to expel at each act of micturition its entire contents. To my mind it is evident that the use of diuretics in such coärctations tends to expose the operation to the danger of a sudden expulsion of urine; for so soon as the blade passes through the strictured portion, the reflex contraction of the bladder forces out a certain quantity of urine from its over-distended cavity. My own practice in all such cases is rather to neutralize the character of the urine than to change it by dilution; and to this end I am constantly in the habit of prescribing alkaline remedies, whereby the urine is changed from an acid state to an alkaline condition, and thus rendered less toxic. A formula which, for this purpose, will be agreeable as well as efficacious is the following:

℞—Potassæ Citratis, ℥i;
Syrupi Limonis, f. ℥iss;
Aquæ, q. s., ad. f. ℥iv. M.

Et ft. solutio. Dose—A dessertspoonful mixed with small tumbler of cold water every five or six hours.

At the same time I place my patient upon the invariable prescription of the tincture of the chloride of iron with the sulphate of quinine, usually in the following proportions: Two to three grains of the quinine with from fifteen to twenty drops of the chloride morning, noon and night. This I do for the purpose of guarding against nervous shock, as well as a protection against pyæmic influence. The patient will find a hot sitz

bath just before going to bed tranquilizing in its nature and calculated to lessen spasm of the urethra.

The night preceding the day on which the operation is to be done, I usually order some purgative pill, and the next morning see that the rectum is cleared out by an enema if necessary. If at the time of the operation there remains any degree of urethral irritation, it will be well to precede the operation by a hot hip-bath, in which the patient must not remain longer than from three to five minutes.

Before we undertake an operation of this nature, we should be abundantly supplied with all the instruments required, and to this end it is absolutely necessary that we should provide ourselves with a full and complete assortment of the best soft bougies,* ranging from the smallest filliform to those of at least 28 millimetres in circumference. In addition, we should be supplied with various sizes of both soft and hard bulbous-pointed exploring bougies, and also a set of steel sounds, nickel-plated, and graded by one-third of a millimetre; from about No. 9 English measure to a full thirty or thirty-five French, which equals 35 millimetres in circumference. Both metal and soft catheters of large and small size will also be required, besides the urethrotomes for the special case.

It is neither necessary nor is it possible to describe every form of urethrotome which has been invented or adopted. It is, however, necessary to classify the varieties and refer to the manner in which they are used; and this may be done in a very few lines. Some being so constructed that they can be made to cut the stricture from before backwards or from behind forwards; others again cut only from the vesical side of the stricture outwards, or toward the meatus. The first of these varieties, for example, is the instrument of M. Ricord, which is a straight sound with a small filliform bougie screwed on to the vesical extremity, the sound being deeply grooved for the purpose of conveying a delicate blade, which, by an ingenious mechanism, is made to traverse the strictured portion after the sound has penetrated, guided by the filliform; and if necessary to cut the stricture from

* M. Benas, of Paris, is the best maker of all these soft instruments. They can be procured of all the dealers in New York.

behind forwards, it is only required to reverse the action of the blade, and it is sprung out in such a manner as to incise freely the portions uncut by the onward motion. The urethrotome of Charrière is also a straight instrument, and fulfills the same indications as that of Ricord. Then there are other urethrotomes which only cut from behind forwards, of which the one by M. Civiale is decidedly the best. This is a straight instrument, constituted of a grooved sound with a flattened olive-pointed extremity which conceals the blade, the blade-rod running smoothly along a deep groove throughout the entire length of the staff. To use this instrument, it is essential that the calibre of the stricture should be of such dimensions that the oval extremity of the instrument can pass easily through, so that when the blade is sprung and the instrument drawn outwards, the urethral wall for at least one-fourth of an inch, both posterior as well as anterior to the stricture, can be freely incised at the same time that the stricture is thoroughly divided. It is evident that with this class of urethrotomes we have no need of a conducting bougie or guide; there is a necessity always that the calibre of the stricture be sufficiently large to admit the olive-point which conceals the blade.

There are other urethrotomes which have regular curves—curves which are large in their sweep—usually that which is denominated "the grand curve of Gely." They have a blade near the extremity which is concealed in a wedge-shaped shoulder, and is so arranged that it can be used either forwards or backwards. They are essentially the same in construction as the straight instrument of Charrière, with the advantage over that of being easily used in the deeper portions of the urethra. The instruments of M. Trelat, of Paris, and those of MM. Bonnet and Boinet, of Lyons, also that of Ricardi, of Milan, are the best of this variety.

Another class of urethrotomes composed of a catheter grooved in its entire length, having a blade which is either shielded or uncovered, is used chiefly in the operation from before backwards, and mainly for the purpose of opening the stricture sufficiently large to admit the dilating sound; or if it be necessary as preliminary to the process of dilatation to give passage

to the urethrotome of Civiale, by which the stricture can be cut from behind forwards.

This class of instruments necessitates the addition of a flexible filliform bougie screwed on to the vesical extremity as a guide or conductor for the staff. It was somewhere about the year 1855 that M. Maissoneuve proposed to affix these small bougies to all instruments designed to cut strictures; and following this, he perfected a urethrotome which consisted of a grooved staff, upon the vesical extremity of which a small flexible bougie was attached; this bougie serving to conduct the staff along the urethra and through the stricture. In the groove a blade half oval in shape was fixed at the end of a small mandrin, and so constructed that it glided smoothly along the groove in the catheter. This blade was only three millimetres in diameter, and sharp along its salient edge. The staff was from twenty-five to thirty centimetres in length, with a short, abrupt curve, and the groove placed on its convex side. The operation was performed in the following manner: The small bougie having been passed through the stricture, was then attached to the staff, and the whole pushed on until the end of the staff entered the bladder; the small bougie being flexible, is coiled up in the bladder. The penis was then put upon the stretch, and the staff held firmly against the lower wall of the urethra; the blade being engaged in the groove, was steadily pushed along until the strictured portion was thoroughly incised. The object evidently in view with this narrow blade was simply to *scarify* the stricture preparatory to the introduction of the urethrotome of Civiale, by which the stricture was to be fully divided through all its structure from behind forwards. The blade having a sharp edge along its entire length, together with the short curve of the staff, which was grooved on its convexity, brought the edge of the blade forcibly against the inferior wall of the urethra so soon as the penis was put upon the stretch, thus endangering the entire inferior wall of the urethra from the meatus to the stricture when the blade was pushed home. Hence it was that objections were made to the instrument; and to obviate which, and at the same time insure a deeper incision, M. Sedillot proposed the following modifica-

tions: He retained the essential parts; i. e., the filliform bougie, by which its introduction was to be facilitated; he changed the staff simply by rendering it straighter, the groove being kept on the convex side; he increased the width of the blade from three to seven millimetres, but left it with the same cutting edge. To protect the urethra, he added another staff sliding in the same groove, having attached to it another blade, which, instead of being sharp, was smooth and without a cutting edge. This second blade was a fraction larger than the first, and served to protect the urethra as a shield. With this arrangement, the blade covered and concealed by the shield, the instrument is introduced and carried through the stricture until the edge of the shield is pressed against the contraction; now the shield is withdrawn and the blade pushed through the stricture.

The objections urged against this modification are: The instrument is complicated and does not fulfill the indications claimed for it by M. Sedillot; in fact, it is so difficult to use that it has been almost entirely abandoned, for the reason that it rendered the operation of urethrotomy one of the most difficult in surgery. To overcome these objections and to do away with the complication of the shield, but to still preserve the original idea, M. Maissoneuve, about the end of the year 1860, concluded to change his first instrument by making the blade triangular instead of oval, and then blunting its triangular apex by placing a sort of button or probe point on it. He also widened the blade and made both of the inclined planes of the triangle edged. The object being that, as the blade was very much widened, the blunt apex would come against the wall of the urethra and thus protect it as the blade was pushed along the staff; the cutting edge of the blade would only act when an obstacle was met. To insure all this it became necessary for him to change the curve of the staff, so that it would correspond with the normal curve of the urethra, and consequently he adopted the catheter curve which is known as the grand curve of Gely—a curve which, in a great measure, corresponds with the natural curve of the urethra. He also placed the groove upon the concave side of the staff, thus protecting the floor of the urethra. Although strictures are generally denser

upon the floor of the urethra, and it would seem best to direct our incisions in that direction, still M. Maissoneuve gained a great and important point by cutting upwards, thus protecting the bulba arteries; and still another more important one, if we will but observe the anatomical relations of the urethra to the body. Here the upper portion of the penis is firmly fixed by its crura to the pubis; the lower wall is not so firmly attached, and hence it is more movable. Now, whenever a sound which corresponds in shape and size with the canal is pressed against the lower wall, its tendency is to put it on the stretch, and by this means the stricture is made taut, and hence much more easily cut in the passage of the blade by reason of its being held in a fixed position.

This same end has been more fully reached by the urethrotomes known as the dilating instruments, first devised by M. Reybard, of Paris, and more recently perfected by Dr. Otis, of New York. But as these instruments are not in general use and not applicable to ordinary urethrotomy, I shall not refer to them here, leaving their consideration to a future paper, in which I shall treat of the operation of internal urethrotomy as a radical cure for urethral stricture.

For the general practitioner, I know of no one single urethrotome better adapted to all his wants than that of M. Maissoneuve; and as I have given the general outline of its construction, as well as the modifications which it has undergone, I may be pardoned if I more accurately describe its working, and point out the manner of using the same.

As I before stated, it is composed of a canulated staff of from one to three millimetres in diameter and about thirty centimetres in length, having the grand curve which Gely, of Nants, first adopted. At the external extremity there is a ring which serves as a handle, the internal or vesical extremity being furnished with a screw to which the filliform bougie is attached. This bougie is the conductor which is to guide the staff along the urethra and through the stricture, the small bougie entering the bladder and coiling upon itself. The two blades, one unilateral (of three sizes), the other bilateral. The unilateral may be well represented as a sort of isoceles triangle, of which the

apex or angle is blunted; the two lateral edges being sharp and slightly excavated, so that they resemble a small plough-share; the base of the triangle is smooth, with the exception of a small catch which holds it in the groove of the staff, being attached in a line with the extremity of the mandrin. The bilateral blade is formed of two unilateral blades united at their base so as to form a lozenge, of which the two lateral angles are blunt, whilst the four sides are edged; in fine, it is attached upon its flat surface through the grand axis to the free end of the mandrin, and is thus held in position in the groove of the staff. When pushed along the urethra it cuts both sides of the stricture as it passes through. To complete the instrument, there is a soft catheter open at both ends and mounted with metal ferules; the catheter equals in diameter the blade which has been used to make the section, and its object is to be used as a sonde à demeure, provided we decide upon leaving a retained catheter in the urethra.

The blades of this urethrotome measure respectively as follows: The three unilateral, 7, 8 and 9 millimetres each; the larger bilateral 9 millimetres; the smaller 8 millimetres. With this series of blades we are enabled to fulfill all the indications of the operation; and with the two staffs—one grooved on the convex side, the other on its concave face—we can direct our incisions at will, either upward, downward, or laterally, as the case may require.

The first step of the operation consists in passing the filliform bougie through the coärctation and seeing that it moves with ease and freedom. We then attach the staff by screwing it on the little ferule of the filliform; this being accomplished we gently push on the staff until it has reached the bladder. If this should not be easily done, it is evident that the mouth of the stricture is too small to admit the ferule to pass (it is not possible to make a reliable screw of less than seven millimetres in circumference), and we must then withdraw the staff and detach it from the filliform, which is to be left as a retained sound for a few hours, when the stricture will be found to have softened down so much that it will yield under pressure and permit the staff to pass. The staff now being in place, we are to observe

the following rules of operating: The catheter should be in such a position that its curve exactly corresponds with that of the urethra; and at the moment when we introduce the blade, the penis should be drawn up on the staff so as to put the urethra upon the stretch, and then hold it firmly, remembering to press the catheter evenly against the lower wall of the urethra at the moment that the blade is being both introduced and withdrawn. The reverse of the last rule must be observed whenever we use the staff which is grooved upon its convexity; here we must draw it up so as to hug the upper wall against the arch of the pubis to prevent the blade from cutting through the urethra.

The operation now being completed, the first step is the evacuation of the urine remaining in the bladder. This should be carefully drawn off through a soft catheter, care being exercised to close its open extremity with the finger after the urine ceases to flow, so that in the removal of the instrument the urine which it contains shall not escape and be deposited upon the surface of the urethra and incision, for if it does it will cause irritation of the wound, and possibly produce urethral fever.

Now comes the all-important question, and one in which there is and has been a very great diversity of opinion among the leading genito-urinary surgeons of the day: Shall we employ the "sonde à demeure," or retained catheter; and if so, how long shall we keep it in the urethra? Upon this important point there are many reasons both for and against the use of the same. One of the most cogent in its favor is that the pressure which it exerts upon the cut portion of the urethra effectually guards against the consecutive hæmorrhage which may take place; but as dangerous or uncontrollable hæmorrhage after this operation is not of frequent or usual occurrence, it does not seem absolutely necessary to resort to a means of prevention which may induce consequences of equally grave nature; viz., inflammation and ulceration of the mucous lining of the urethral canal. Then again, the presence of the point of the catheter pressing against the already inflamed neck of the bladder may, and not improbably will, light up a cystitis, which will greatly complicate the termination of the case.

Among those who were and still are advocates of the use of the retained sound, the names of Civiale, Phillips, Sedillot, Voillemere and Maisonneuve will give weight to the procedure; whilst on the other hand, we may bring as opponents those of Sir Henry Thompson and Mr. Teevan, of London, both of whom have abandoned the use of the sound from the conviction of its uselessness or absolute hurtfulness; the former from his observation that it did not protect the urethra—the urine finding its way along the side of the instrument, between it and the urethral walls, thus coming in contact with the incision; the latter for like reasons, and because he has met with abscess—the result of its use. "I never," says Mr. Teevan, "employ a catheter after any form of urethrotomy. I consider the retention of the catheter favors suppuration. The only case in which I had abscess occur after internal urethrotomy was when I left in a catheter—hence my prejudice."*

My own opinion as to the propriety or impropriety of using the sonde à demeure is not yet fully established. I am, however, perfectly convinced that urethral fever coming on after urethral operations is chiefly and almost always the result of the urine coming in contact with the fresh incision; for, as a general rule, we never have the rigor until after the first passage of urine. Now this being the case, it appears rational that we should guard or protect the wound, either by the retained sound or by the introduction of a catheter whenever calls to micturate are made. But as there are grave reasons why we should not keep a foreign body continually present in the urethra, because its presence increases the irritation, favors suppuration or the formation of abscess, to say nothing of its producing ulceration of the vesical neck, I have rather contented myself with the regular introduction of the catheter, to relieve the bladder at stated times, for the first twenty-four, thirty-six or forty-eight hours, as circumstances may indicate after the operation. In those cases where it is either inconvenient or impossible to draw off the urine with the catheter, owing to the frequent disposition to pass urine, or the distance at which the patient may

* Manuscript letter from Mr. Teevan to the author.

reside from me, I leave in a soft retained catheter, being careful to withdraw the point just without the prostatic urethra, and then instruct the patient to push it into the bladder whenever he has a call to pass his urine, after which he is to withdraw the catheter just sufficiently to clear the prostatic canal. In this way I protect the vesical neck against the irritation of the point of the sound, and guard the walls of the urethra against the urine which otherwise would be conducted to the incision. I never prolong the use of this instrument beyond twenty-four to thirty-six hours, for by this time the wound is sufficiently glazed over with a superficial discharge, which will in a great measure protect it against the irritating influence of the urine, which I now permit to be passed at will along the unobstructed canal.

After a very extended experience with these cases, I have concluded that in this way we may gain all the advantages without any of the objectionable features of the sonde à demeure. In conclusion of this subject, it may not be out of the way for me to state that I have very frequently performed internal urethrotomy without resorting to any of these precautionary measures, and in very many instances I have had no rigors or other complications; whilst on the other hand, even where I have been extremely cautious, resorting to every means of protection, and guarding my patient by the timely use of the catheter, I have encountered urethral fever in spite of all my efforts to avert it. Hence it is I am still unprepared to say, with any degree of assurance, that I am either a convert to or opposed to the use of the retained sound, preferring to hold the subject, at least for the present, *sub judice.*

Immediately after an operation, I place my patient in bed and give him the following powder:

℞. Quiniæ Sulphatis, grs. x to xv.;
Pulv. Camphoræ grs. ij to iv.;
Pulv. Opii, gr. i.
M. et. ft. pulv. No. i.

The parts are then surrounded with either the "cold-water coil" of Dr. Otis, or with what I prefer as more convenient and

equally good, an ordinary towel saturated with cold water, or the following lotion:

℞. Tr. Opii, f ℥ii;
Liq. Plumb. Subacet, f ℥iss;
Aquæ Subacet, Oij;
M. et. ft., lotio.

The patient is directed to keep the parts constantly surrounded with a soft towel wet with the mixture, changing it as frequently as it becomes warm; this to be kept up for twenty-four hours at least. In hot weather I usually add ice, so that the solution is kept cold. If in the meantime a rigor should occur, I at once order a large mustard-plaster to be placed over the epigastrium with another down the spine; bottles of hot water to the feet, and covering sufficient to hasten reäction, adding, if necessary, hot brandy toddy with 25 to 30 ms. of aromatic spirits of ammonia. After reäction has been fully established, it is then all-important to induce diaphoresis; and to this end I have found the following mixture most efficacious:

℞. Vini Antimonii, f ℥i;
Spts. Ætheris Nitrosi, f ℥iv;
Liq. Ammon. Acet. q. s. ad. f ℥vj. M.

Two dessertspoonsful every two hours until free perspiration takes place. It is seldom ever necessary to give more than the second dose before the object is accomplished and the patient restored to his former condition. Sometimes it is necessary to open the bowels with a brisk mercurial purge, but this must be left to the judgment of the practitioner, and to the especial indications of each particular case.

It is not until the second or third day after the operation that I venture to commence with the regular and systematic introduction of the sound; first using that size which will pass easily through the urethra, and gradually progressing with some three or four numbers at each sitting of every other day, until the maximum dilatation of the special urethra is reached. This is to be decided by the relative proportion between the size of the flaccid penis and the urethra. This is best determined by the rule of Dr. Otis, which is, a penis measuring three inches in circumference during its flaccid condition has a ure-

thra equal in size to a sound of ten millimetres in diameter, or thirty millimetres in circumference; the increase of every eighth of an inch in external measurement calls for an increase in the sound of one millimetre.

This course of dilatation is continued until the maximum point is reached, and until all pain, soreness, and discharge have subsided; then, and not until then, may we consider it safe to discharge the patient. Whenever I begin the treatment of one of these cases, I order him to procure a suspensorium, and to continue to wear it for months after he has passed from under my hands. During the time when the bougies are being used, I consider it a precaution to keep the patient upon a tonic course of treatment of some two grains of quinine with ten to fifteen drops of the tincture of the chloride of iron every morning until all danger of urethral complications has passed.

Although I am beginning to be convinced of the possibility of producing radical cures in cases of stricture whenever the morbid cicatricial tissue has been completely divided by the knife, and a well formed and ample splice secured, still I always furnish my patient with a smooth steel sound suited to the calibre of his urethra, and instruct him to use it once each month for a year or more, thus guarding against the possibility of a relapse. This I consider necessary more as a precaution than as an absolute necessity.

The first appreciable results of such a course of treatment are: The urine is passed in a full stream and without straining; the calls to micturate are less frequent and more satisfactory; the continual retention of a small quantity of urine in the bladder and urethra ceases, and as a consequence the increased sensibility of the parts vanish, and the patient rapidly experiences a radical change in his condition. These are the immediate effects, which in time are soon followed by more positive results. The operation gives us a softer and more elastic cicatrice, and if after the stricture has been divided we use the sound systematically and judiciously to redress the urethra, we so model the cicatricial splice that the canal is restored to its normal size and state, thus offering less resistance to the flow of urine, and as a sequence there remains less irritability of the canal. We do

not wish to be understood to say that urethrotomy destroys the tissue proper which constitutes the stricture, but rather that it gives a new surface to the wall at the point of coärctation, thus diminishing and at length suppressing the suppuration which always exists behind the obstruction, by reason of the fact that the urine, having a free outlet, ceases to be irritating in its quality. Without entering into a long discussion of the physiological and pathological changes of the mucous membrane and the subjacent tissues of the urethra, these are some of the definite results following the operation—results sufficient at least to authorize a resort to the same.

It is here proper for me to state that all operations done upon the male urethra are liable, however carefully and judiciously conducted, to be followed by very serious and even fatal consequences. Nervous and irritable patients occasionally suffer very greatly from the most trifling operations upon the urinary organs, the mere introduction of a sound or catheter often inducing violent rigors, great prostration, and sometimes other very unpleasant results.

The urethra being naturally very sensitive, it is not astonishing that in its diseased condition any instrumental interference should give rise to any one of the following complications: Such as nervous shock, arthritic inflammations, pyæmic influences, with formation of matter in the cellular tissue, in the joints, muscles, liver, lungs and other glandular structures. These facts should induce every caution, both before and after the operation; still they should not deter us from an operation which is not only often necessary, but one which, from the success attending it, we are justified in performing.

In the last edition of Sir Henry Thompson's Lectures on the Urinary Organs, we find that he speaks of the operation as "safe, efficient, certain," and as "giving more lasting results than any other." He gives also the statistics of some two hundred operations of his own, and records among them only two deaths—"one from embolism," and "one from disease of the kidneys." Mr. Teevan, of London, another very distinguished authority upon this subject, is decidedly in favor of the operation. He cites many cases of success, and brings forward

the evidence of the French surgeons, showing statistics of upwards of one thousand cases operated upon by them with only three deaths, adding that, "if it had not been for the crowded state of the Necker Hospital during the Commune there would in all probability have been only two." He considers the French surgeons "invested with all the authority of *ex cathedra* judgment" upon this subject, and asserts that they are decidedly in favor of the operation.

In this country Dr. Otis, one of the most distinguished advocates of the operation, has performed it (I believe) something over three hundred times, and I am uninformed if he has had a single death. My own experience shows notes of two hundred and eighty-seven operations in which I have operated by one or another of the various methods, and I have not yet met with any serious complications. I have not had a single death, nor any of the graver accidents. In two cases I had a good deal of hæmorrhage, which was promptly arrested by using a full-sized sound; and my patients each made good recoveries. In quite a number of cases I have met rigors followed by fever, etc.; and in four of them they were very severe, although with the exception of one case there was nothing alarming. In that case, owing to his own imprudence and neglect of instructions given, he was seized with the most severe rigor I ever witnessed, speedily becoming comatose, and only recovering after a close race for his life. With the evidence before us of such men as Thompson, Teevan, and I may add the almost entire French school, we may with safety consider the operation, when performed with care and the patient properly prepared and judiciously treated after the operation, as not more dangerous than other operations of like magnitude.

In appreciation of the various methods of performing this operation, I myself give the preference to that one in which the incision is made from behind forwards with the retrograde urethrotome of Civiale. It is requisite, however, in this form of urethrotomy that the strictured portion should readily admit the oval extremity of the urethrotome. But when the stricture is close and difficult to pass, there is no better instrument than that of Maisonneuve, which can always be used with singular

ease and dexterity whenever it is possible to pass the filliform guide. Whilst in "strictures of large calibre"—strictures through which it is easy to pass a large-size instrument, but which are firm and hard, depending upon a dense deposit of retractile tissue, and keeping up a troublesome urethral discharge, the urethrotome of Dr. Otis will be found to fulfill all the indications required. With this instrument I have succeeded in relieving my patient after all other methods had failed. The scale which is attached to the instrument enables us to know exactly what length and depth of incision is being made; and with it we perform the operation with almost mathematical certainty.

ART. II.—*Introductory Address delivered before the Students of the Nashville Medical College October* 1, 1877. By Prof. PAUL F. EVE, M. D., President Board of Counselors.

[The author, in consenting by request to have published this address, adds the remark that in having it copied the signs of quotation, in certain portions of it, may have been omitted.]

Gentlemen of the Class,—You are entering upon the study of one of the noblest, most benevolent and responsible professions of life. In welcoming you into its ranks, as I do most cordially in behalf of the Faculty, and bidding you God-speed in the work before you, in this our first interview, permit me affectionately, as a parent would, to help solve the momentous question now suggested to each one of you—how am I to succeed in life? Will I become a useful member of society by so discharging the onerous duties soon to devolve upon me as to merit the plaudit of "well done good and faithful servant," or shall I fail, disappoint my alma mater, my friends and family? In the presence of this large audience assembled to congratulate you on this auspicious commencement of your studies and fair prospects for success, permit me to remind you that your future position in life depends exclusively upon yourselves. That which you now determine to become in medicine, just where you are seated this very moment, will in all probability decide precisely what will be your future position in the profession.

The axiom that every man makes or mars his fortune is based upon the assumption that the elements of success in the various vocations of life are common to us all. It is by no means pretended that all are born alike and are equally endowed, or that he with one talent will be responsible for the five or ten possessed by another; but it is believed that he will be held to as strict accountability for what he may possess as the other. Our duty here is to do the best we can under the circumstances in which we are placed, and in doing this we are but carrying out the great end of our creation. It is the duty of every one to make the most he can of himself morally, intellectually, and physically; and the reason why so many fail to do this, is that they will not try, or, if they do, are not in earnest. There is no secret in the success of great men; the result is the legitimate effect of close attention to business, untiring industry and indomitable perseverance. General Washington, had he studied medicine, would undoubtedly have made a good physician, just as would Dr. Rush a distinguished lawyer or divine, had he devoted himself to either of these callings of life; and for the obvious reason that all their energies would have been enlisted in the cause they would then have advocated. So the student who does not miss a lecture of his two full courses; who will carefully study at night what he has been taught during the day; who improves every opportunity to acquire professional knowledge, whether at the college, clinics, or in his room during the evening; who determines to devote his whole time and all his energies henceforth to the interests of medicine; he it is whom we feel pretty certain is sure to succeed.

Man, too, is so constituted that occupation is essential not only to his true happiness and best interests, but to his very existence. An idle boy is apt to make a vicious man. Labor is our lot on earth, and it, we are taught, conquers all things. It is certainly far better to be industrious; more honorable to make our own living than to eat the bread of idleness. Less talent, too, is fortunately necessary to acquire a profession than are patient toil, privation and study. Genius, the gift of nature, too often renders the possessor self-confident, indolent, irregular in his habits; and almost always makes an indifferent student. Surely there

is more manliness in making first an honest trial by evoking all our energies, improving all our time, doing every thing we can to secure success, before repining at our fate or envying some more favored rival. He who has decision of character is almost sure to become distinguished. Fellow-students of medicine! now become collaborators for the honors of the healing art, "what thy hand findeth to do, do it with all thy might."

> "Labor for some good, be it ever so slowly,
> Cherish some flower, be it ever so lowly,
> Labor, all labor, is noble and holy."

To account for the differences met with in society, my observation leads me to attribute more to *energy* than to any thing else. Its influence, too, is certainly greater than talent, wealth, patronage or opportunity; for what avail are all these without the spirit or animation to develop and use them. It is the impression made by the subject and the force of the will which give vigor and efficiency to the intellect. The attention bestowed on the question under consideration; the manner of investigation; the concentration of the mind on the object before us; the enthusiasm with which we pursue the study; these make the man. Resolution of itself often suggests expedients. To a determined will obstacles are almost as nothing. A truly virtuous will is almost omnipotent; and most any one can make of himself what he pleases by an honest purpose and a fixed determination to succeed. Lord Bacon placed all men of equal attention on the same level, recognizing nothing as due to genius; and Lord Chesterfield declared that the sure mark of a superior mind was a steady and undissipated attention to a single object. Buffon, Hogarth and Cuvier defined genius to be only patient, protracted attention, labor and diligence. Dickens bequeathed to his countrymen the same word—*attention*—as the one to which he was most indebted for becoming a successful writer. The superiority of mastering figures by mental arithmetic over the old system is undoubtedly due to its demanding more thought and attention. When Sir Isaac Newton was asked how he had done so much for the sciences, he replied, by constantly thinking about them; and added that he knew no difference between himself and others but in the habit of observation and close

attention. The ancients taught that a man of one idea was terrible, for he was almost sure to succeed, be it for good or evil. The father of Hannibal made him, when only nine years old, swear on the altar of his country eternal enmity to Rome; and to this day that city never so trembled as when this boy, grown to manhood, thundered at her gates, after gathering three bushels of rings from her nobility slain at the battle of Cannæ, then the sea-port of that future mistress of the world.

To succeed in any profession, we should be wholly devoted to it, and this in a peculiar sense is applicable to ours; for none is so exacting. It demands all our time, in season and out of season, night as well as day; for in its work of necessity and mercy no Sabbath of rest comes to the weary physician. In his labor of love in doing good to others, however poor and humble they may be, he may hear the voice of the good Samaritan sounding in his ears: "Take care of him; what thou doest here on earth to one of the least of these little ones I will repay thee." Well did Hippocrates, the father of medicine, say to his followers, if you love mankind you must love your profession. The good Dr. Boerhave, too, said take care of the poor when sick, for God is their paymaster. And our own great Dr. Rush observed: "When I come to die I shall relinquish many attractions of life, and among them a pleasure which has to me no equal in human pursuits; I mean that which I derive from studying, teaching and practicing medicine." If the best we can get out of this life is usefulness to others, then I can assure you, my dear friends, you have come here on a noble mission; nothing less than the acquisition of that profession, the benefactions of which will make you a blessing to the community in which you may reside.

"*True happiness, if understood, consists alone in doing good.*"

It is not the man, as Sidney Smith said, who first points out the thing that is the true discoverer, but he that says it so loudly, so clearly, so persistingly, that the world is compelled to believe it. Truth, it is said, will prevail, though found amazingly tardy in medicine. The fact that cataract has been made known for centuries to be an opacity of the crystalline lens in the centre of the eye, and yet is believed to this day by ninety-

nine in every hundred of all classes of the community to be something growing over the eye, and which must be taken off to restore sight; then again that dew never falls, but is really nothing more than the condensing by cold of the moisture always existing in the atmosphere, like the formation of drops on the outside of the ice-pitcher, as was explained by Dr. Wells as far back as 1814; these, we say, are certainly striking instances how slow even the most intelligent portion of our people are in acquiring knowledge connected with our physical condition. Reference, too, might be made to the vile and shameless impostures daily placarded in our streets and highways, reaching now even the very summit of the Rocky Mountains, where Bayard Taylor railed out against the Pacific Railroad Company for permitting these mendacious advertisements to deface the finest scenery in the world. "Wherever," says he, "there are noble masses of rocks, there you will find painted the unclean shibboleth of bitters, lotions, syrups, etc.; such as no other country would tolerate for a day."

Not even the nature of our calling is rightly comprehended; for we are not in search of supposed specifics for diseases. Common sense has taught us that what is good for one man may not be for another. Of the millions of the earth's population no two are probably precisely alike; and is it not therefore reasonable to suppose that that which is good for one may not be suitable for another, and certainly can not be for all? The very idea is preposterous. Hence we are not in search of specifics, or even of so-called remedies, but rather are we engaged in studying hygiene, the laws of health, so as to obviate the necessity to resort to medicines at all. And we are free to admit that as disease is simply perverted health action, our great aim is to assist nature in relieving the case. Just as every one is recognized by some peculiar or even unique personal expression, so has he in all probability some singular or special physical construction, which may require careful investigation before prescribing for his case.

History abounds with examples of those who, by personal energy alone, have done wonders and become benefactors of humanity. The stimulus of necessity is oftentimes one of the

best incentives to labor; so that to be rocked in the cradle of penury is often far better than to be born the inheritor of wealth. It is not every rich man who is necessarily a great man; neither does every poor man remain in obscurity. Proud old England, with her law of primogeniture, has been saved or made better not always by the eldest, but oftener by the younger of her sons; and while she boasts, as well she may, of her Bacon, Newton, Milton and Byron, all of whom graduated at her renowned university, Shakespeare did not. At a later period also, while McCaulay, Bulwer, Thackeray and Tennyson received their honors at Cambridge, Dickens did not. So that of her ten greatest literary characters, two of them received no collegiate education.

Time would fail me to enumerate striking cases of great deeds accomplished, and the world made the better by those whose prospects in early life were no better, if indeed as good as ours. But they will be found to have been acute thinkers, profound students; those, too, who never tired in their investigations; were never diverted from the object aimed at. Socrates, the wisest of the ancients, is represented to have stood a day and night studying a weighty subject. Archimedes, at the taking of Syracuse, was so absorbed in a problem that he carelessly remarked to a soldier about to slay him, "don't interrupt me and my affairs." Another was so wrapped in meditation that he forgot the day of his wedding. A German student, recently married, rose the sooner the next morning to secure his sixteen hours daily study. The great Newton was frequently so absorbed in thought that he had to be shaken to make him heed the call to dinner.

Lord Brougham is said to have studied six consecutive days and nights—that is one hundred and forty-four hours—without sleep; then rushed to his country-lodgings, slept all Saturday night, all Sunday, all Sunday night, and was awakened by his servant Monday morning to commence the duties of the new week. The great reformer, Martin Luther, was the son of a poor miner. "My mother," he writes, "carried her wood on her shoulders; my parents had a sharp, bitter experience, and none worked so hard as they." He himself was brought up

under severe and rough discipline. Such was the early life of him who broke the mighty power of the Popes of Rome; set in motion the Reform or Protestant religion; and who, when cautioned as he was summoned to meet Charles V, Emperor of all Germany, at Worms, made the ever memorable reply, "though there were as many devils as tiles on its houses, I am resolved to go there."

Lord Elden was early advised by a friend to keep constantly in view the Chancellorship, that he might reach it, and to which he actually attained. So also my first teacher in surgery, the late Dr. William Gibson, declared that when he heard Dr. Physick lecture the first time, he then and there resolved to occupy his place, which actually occurred in a few years afterwards by the transfer of the father of American surgery to the Chair of Anatomy, against, too, his own wish and that of his friends.

Many remember the painful incident in the life of Sir Walter Scott, when by reverse of fortune he was brought in debt to the enormous amount of $750,000. Unappalled by the magnitude of the misfortune, which would have crushed most men, he declined the generous settlement proposed by his creditors, and at the age of fifty-five resolved to reïmburse them by his own unaided literary labors. How he studied, how he wrote, how humbly he lived, and finally died from this self-imposed labor and over-tasked brain, the world now knows; and how successfully, too, he achieved his object. By the most wonderful, almost superhuman intellectual labors continued for twenty years, by his pen alone, he paid over $500,000; and from the sale of his copyright property fully satisfied his last creditor. The making of half a million of dollars in so brief a period as twenty years, by the writings of one man, is a feat which will probably never be done again.

When Sheridan made his first speech in Parliament, so signal was the failure that his friends urged him never again to make the attempt; but he indignantly replied, "It is in me, and shall come out;" and it is known everywhere how well and frequently it did afterwards.

The most illustrious example the world ever witnessed of what could be accomplished by individual effort, was in the per-

son of one born without fortune, family influence or rank; who nevertheless in a few years subjugated nearly all of Europe, and this, too, in the 19th century. Kings became the suppliants at his feet; surrounding nations were the presents distributed to his family and friends; he even married a descendant the daughter of the Cæsars. But then no one ever worked as he did. He bent all the faculties of his great mind, towering ambition and wonderful endurance to obtain his object. For seven successive days and nights during a campaign he never sought repose by taking off his clothes. He once rode on horseback, in Spain, one hundred and five miles in five consecutive hours, thus anticipating railroad speed.

He could dictate to three scribes while he conversed with a fourth person. He rejected the word impossible from his vocabulary, and let ambition reign supreme. Decision, prompt, vehement action, was his great characteristic. Though small of stature and commander-in-chief, he was the second in the charge across the bridge at Lodi. When his army hesitated at Arcola, he seized a standard and rushed to the head of the attacking column; and when defeated, as all believed, at Marengo, he seized the opportune arrival of fresh troops, and, as if by inspiration, ordered them forward while he reformed in their rear; thus in an instant converting an apparent defeat into a glorious victory. The last words this mighty hero ever uttered gave the true exponent of his ruling passion, even strong in death, for he expired with the exclamation, "tête d' armée": Head of the army; yes, of all that ever existed.

Michael Faraday, the celebrated chemist, philosopher, and physicist, was the servant, then the associate, and finally the successor of Sir Humphrey Davy. Louis Napoleon made him a commander of the Legion of Honor. He was the son of a poor blacksmith, so reduced that he lived almost on charity, and the child first caught the inspiration of study by reading books sent to the shop for binding, where he was apprenticed, and afterwards he became a newsboy. Though of so obscure an origin, he took position with the greatest and loftiest of his day. He it was who proved by direct experiment the identity of electricity and galvanism; made the Atlantic cable possible

(the splicing of which in mid-ocean, when broken, is one of the grandest achievements of human genius); gave the electric light to the storm-tossed mariner, and his own name to our profession in the word faradization. It was this gigantic intellect who, when forced to examine the subject of table-turning and alleged wonders of spiritualism, burst forth in a bitter cry for improved education among the masses, confessing that he had been so shocked at the flood of impious and irrational matter brought before him, "that apart from the spirit placed in man by the Almighty, he should prefer the obedience, affections, and instincts of a dog to the average of the human mind."

One of the most remarkable houses in London is called the Cavendish—called after the owner, who in his excessive fondness for experimental chemistry, left it as it now stands, a complete workshop. He disliked above all things pecuniary transactions. When his banker called to know what he should do with £200,000 lying idle to his credit in bank, Cavendish asked if it was an inconvenience, and if so, to transfer it elsewhere. "About investing it," he said: "Yes, if you will do it, but do as you please; don't interrupt me again with such things; I have other matters to think about."

Chief Justice Marshall, who first filled that office in our country, was so shabbily dressed and poverty-stricken when he arrived in Philadelphia on foot as a delegate to obtain additional forces to protect Virginia during the revolutionary war, that the landlord of the hotel refused him admittance.

The chief characteristics of Old Hickory, Tennessee's famous hero, were integrity and energy, two of the best qualifications for any man. History records no name up to his death in which moral and personal courage were more harmoniously blended. He it was who dared to lead where others could dare to follow. He it was who would do all it was ever right to do, and of whom Bancroft, the Northern historian, wrote: "Not danger, not an army in battle array, not wounds, not wide-spread clamor, not age, not the anguish of disease, could impair in the least degree the vigor of his steadfast mind. He never was vanquished. He conquered the wilderness; he conquered the savage; he conquered the bravest veterans trained

on the battle-fields of Europe; he conquered everywhere in statesmanship"; and when the summons of death came, we add, he conquered the last enemy of man through faith in a risen Saviour. Andrew Jackson was the son of obscure parentage; educated by a poor mother, and she a widow! General Lee said *duty* was the sublimest word in the English language, but the dearest of all is mother, *my mother*.

Ex-President Polk, during the first fourteen years of his life, could receive but a very imperfect education until relieved of a terrible affection by an operation performed by Dr. Ephraim McDowell; but during the next fourteen years he had graduated at Chapel Hill, North Carolina; studied law; was admitted to the bar, and elected to Congress. He not only never missed a recitation, but was not even once tardy at sunrise prayer-meeting, and, as might have been expected, took the first honor in his class. One of his schoolmates, late a bishop in a church, and unfortunately killed in Georgia during the late war, when asked if he was not once a rival of Mr. Polk, promptly replied: "No; *James K. Polk had no rivals.*"

One of the best illustrations of the effect of intensity of action was displayed by a poor uneducated youth, who walked a few years ago part of the way to Washington City to obtain if possible a cadetship at West Point. At the appointed time he rolled like a mighty avalanche out of his native valley; moved infantry like cavalry; and such was the fiery energy of his attacks that he swept every battle-field with the bayonet. Believing his cause just, he threw away the scabbard in unsheathing the sword, and his decision in every conflict was victory or death. This made him the *stone wall* of the Southern Confederacy, the fall of which was baptized in the blood of the martyr, and we became the greatest of mourners.

"He sleeps the sleep of the mighty slain,
Fallen, but yet without a stain."
"There are heroes who never wear the laurel;
And martyrs who never gain the crown."

In our own profession, Harvey was twenty-six years studying the circulation of the blood. Dr. Jenner for twenty years was diligently investigating the subject of vaccination.

England's greatest surgeon, John Hunter, was once a cabinet-maker, and when he came to London was the associate even of resurrectionists. He soon began to dissect everything, and with such assiduity did he study the habits of animals, that more than once he was nearly devoured by them. He studied from 6 in the morning to 12 o'clock at night, and would allow only professional calls to interrupt him. Returning home unexpectedly one evening, he found assembled in his parlor a large dancing party. Not the least disconcerted, Hunter said to the guests: "I knew nothing of this kick-up; you must retire, as a Bengal tiger has just died in a menagerie, and I am going to dissect him." He became by far the greatest surgeon, comparative anatomist and physiologist of his day, and left a museum still known by his name, which contained at his death 10,000 specimens prepared by his own hands.

Dupuytren, who for years during the present century swayed the sceptre of surgery, would often relate the incident, that "had not Monsieur Dupuytren been compelled from poverty to supply his lamp with oil eked out of the material furnished the dissecting-rooms, he might never have become the *Baron* Dupuytren." He died at the comparatively early age of fifty-six, and may be said to have fallen in the harness; for while lecturing one morning at the Hôtel Dieu of Paris, where he usually spent five hours every day ministering to the sick poor, and though paralysis was imminent, he quietly supported his cheek with his hand, and to the astonishment of the class completed his discourse. He was now induced to travel to recuperate his health by abstraction from business; but when approached by a friend in Italy with the question why so sad, came the heart-felt expression, "Je songe de l'Hôtel Dieu;" "I dream of the Hôtel Dieu;" the scene to him of so much labor and glory. He never failed once in the severe competitions for professional honors in Paris.

By the death of Baron Larry, Napoleon's great surgeon, and whom he had pronounced the most virtuous man he ever knew, his place in the Institute of France became vacant. To the astonishment of the scientific world, it was filled by one who only twenty-five years previously was shoeing horses in his

father's blacksmith shop. In calling upon him in 1830, he answered his own door-bell, yet in twenty years the name of Velpeau was known throughout all Europe by his valuable contributions to medical science. At forty-four years of age he had published 25,000 pages on professional subjects. Death is said to be an honest hour, and the last sentence he ever uttered tells emphatically how he had succeeded. If I fail to impress upon you the word *energy* by this lecture, then remember the dying message of the great Velpeau to those around him: "Mes amis, il faut toujour travailler;" my friends, it is always necessary to work.

Sir James Y. Simpson, who died in 1870, was the son of a baker and grandson of a quarryman. Three years after he began his letters he took the prize for scholarship; then commenced the study of medicine; was elected a professor, when the usual calling of the roll for students was omitted, as it was certain all were present when he lectured. By his death the hotels of Edinburgh alone, it was estimated, lost annually £500,000. And yet the chief characteristic of this great man was humility.

Claude Bernard, born 1813, a member of the French Academy of Sciences, senator, professor, grand officer of the Legion of Honor, and discoverer of the glycogenic function of the liver, was born of parents wretchedly poor. His mother even peddled eggs to obtain means to educate her boy.

The father of American Surgery, Dr. Physick, was averse to the study of medicine, and began it only at the earnest solicitation of his father; but when it was thus somewhat forced upon him, such was his zeal and industry, that it is stated he actually committed to memory the first book his preceptor placed in his hands. This was Dr. Cullen's voluminous "First Lines of Physick"; and thus it was that Physick studied physick with all his might.

Dr. George McClellan, father of the general of that name, is represented by his biographer as incessantly occupied; perpetually manipulating, experimenting, prescribing; rapidly at it and always at it. On one occasion, while reading, he leaped from his chair, exclaiming: "Mott, of New York, is said to have

tied the innominata for aneurism, and I believe it." Then running out of the room and returning after a brief delay in the dead-house, he exultingly added: "I have done it." He certainly was in earnest.

The late Dr. John D. Godman, of Baltimore, was left an orphan at three years of age, and at five was cast among strangers, motherless, fatherless, friendless and penniless. He himself wrote: "I have eaten the bread of misery and drank the cup of sorrow." Now, notwithstanding these most unpromising circumstances, and though he died at the early age of thirty-two, he had lived long enough to have been elected professor in three medical colleges, and in the last one was the associate of such men as Mott and Frances. During the war of 1812 he fought as a common sailor at the bombardment of Fort McHenry. Being quite diminutive for his years when he applied to study medicine, his preceptor said: "Little boy, do you know Latin?" "No sir," was the reply; "but if I live long enough, I will make a Greek, Latin and French scholar;" all of which he achieved. Such was his proficiency in acquiring the profession, that when Dr. Davidge, the Professor of Anatomy in the University of Maryland, had his leg fractured, young Godman, then in his second course of lectures, and therefore not even a graduate, was unanimously selected by the Faculty to take his place. The enthusiasm of such a spirit knew no bounds to his study; day and night, summer and winter, alone in the wide world or oppressed by the cares of a family, he took little rest, and in the midst of a brilliant career was unfortunately cut off by consumption and lost to science and humanity.

The ancestors of the author of the great work on the "Disease of the Mississippi Valley," Daniel Drake, who was my colleague twenty-five years ago in the University of Louisville, Ky., were poor and illiterate. They could only send him to school part of the year; the remainder he had to work on the farm, attend the cattle, till the soil or clear the forest. He is represented by his biographer to have had many characteristics; but the one he possessed above all others, and that in an eminent degree, was *intensity;* intensity of thought, of purpose

and of action. His temperament was too ardent for him to have remained an idle and unconcerned spectator of the world. It was hot, positive, like the pole of an electric battery; active, ever restless, always doing.

I ask you now, young gentlemen, if the case has not been made out that you possess advantages which, if properly improved, will assure you an honorable position in your profession. You have but to discharge faithfully the duties devolving upon you as students of medicine, and your cherished object must be attained. Be not blind to the teachings of history; all great men, with scarce an exception, have been made so by painstaking, self-denying and incessant labor. To master your art, you must become indefatigable workers and enthusiastic lovers of your calling. Carry out the object of this introductory by becoming the architects of your own fortunes. Undoubtedly God has a plan for every man, but leaves each one to develop this for himself. Don't believe the world owes you a living; in her economy every one is expected to earn his own support; and those who attempt to live by their wits too often make shipwreck, and are left like drones upon the community. One effect of the war was the unpleasant, painful exposure of numerous young people (and there may be some now belonging to this class) who literally did nothing for an honest support. Too lazy to work, they subsisted like parasites and sponged on the community. Thrown now upon your own resources and by age made responsible, you have to think and act for yourselves. The medical profession is your capital; see that you honor it to the best of your abilities. Arise, then, in the strength and majesty of your own brave hearts, and by the irrepressible energy of an invincible will, become henceforth benefactors to suffering humanity.

"In the world's broad field of battle,
In the bivouac of life,
Be not like dumb, driven cattle;
Be a hero in the strife."

But there is a success in the world due to integrity, which is more essential to a young man than any special professional qualifications, be these what they may. The great want of the

times in which we live are men who can not be bought and sold; whose character is above suspicion. Let truth and honesty be superior to every other consideration. In this, the crisis of your life, begin right. Ever remember the sacredness of an engagement, and redeem every obligation, though it be to your own hurt. Make a character for temperance, punctuality, regular and industrious habits; eschewing self-indulgence, especially whisky and tobacco, the two great besetting sins of our day. This will secure confidence, the very thing you most need; for character is power in a higher sense, even better than knowledge.

Carry ever about you Sydenham's last admonition to the physician, "that as he himself is not exempt from the common lot of mankind, but liable to the same laws of mortality, to the same miseries and pains as are all the rest, he should endeavor to be more diligent, more tender, and more affectionate to his fellow-sufferers in helping those who are sick."

Remember, too,

> "The world can never give
> The bliss for which we sigh;
> 'Tis not the whole of life to live,
> Nor all of death to die."

ART. III. — *On Kolpokleisis and other Allied Procedures as Means of Treating Vesico-Vaginal Fistule. Being an Answer to the Article of the late Professor Gustave Simon, of Heidelberg, entitled "A Comparison of Bozeman's Operation with that of the Author."* By NATHAN BOZEMAN, M. D., Consulting Surgeon to St. Elizabeth's Hospital, New York.

(*Continued from p.* 357.)

Having now learned from Professor Simon's letter (1868) to what extent he and his followers in Germany had carried the operation of kolpokleisis, and having become convinced of the greater advantages which are secured by my dilating speculum and support for the knee-chest position in the treatment of vaginal atresias and of the fistules which complicate them, I was led to the conclusion that kolpokleisis, which I had regarded

up to this time as deserving favor, might in future be greatly curtailed in the range of its employment. I discovered that out of *eight* indications laid down by Professor Simon for the application of kolpokleisis, in only a single instance, according to my experience, was the operation admissible; viz., loss of tissue and impossibility from coëxisting adhesion of bringing the two sides of the fistule together. Even under these circumstances I began to think that, by greater perseverance in the preparatory treatment, in which, as before remarked, I had made so decided improvements, kolpokleisis might be avoided. Becoming strengthened in this conviction, my investigations and observations finally presented the whole subject to my mind in a new aspect, bearing upon the moral, chemical and physical results of the operation. Upon these several points I hope at some time to speak more fully. It will suffice at present to say that patients came under my notice presenting reäctionary complications of the most dreadful character, whose fistules had been treated by such expedients as felling or basting their edges, or folding them in the bladder, sometimes at the expense of incarcerating the cervix uteri in the bladder, and not seldom of obstructing the urethra—these expedients all growing out of the necessity of securing broad refreshed surfaces in the operation and in increasing the chances of success as regarding the relief of incontinence of urine.

At this juncture, and in this train of investigation, I conceived it to be of the greatest practical interest to learn the condition of cases, after some years, in which the operation of kolpokleisis was known to have been completely successful. I accordingly addressed a note to Dr. R. P. Means, of Hickory Grove, Ala., who had had my first and only patient upon whom kolpokleisis had been performed (1859) under observation for several years, requesting him to make a thorough investigation of the case and report to me the result. Here is his answer:

"Jane Finley is living, and her general health is very good. She can retain her urine while walking about sometimes, but it occasionally dribbles. If when lying down she immediately answers the call to urinate, she can retain the urine long enough to get up and go out doors. She does not complain of any

pain, but says that she used to retain her water much better soon after the operation on her than she can now."

About the same time I wrote to Professor Wernher, of Giessen, who was the first in Germany to secure a complete result from kolpokleisis, as stated by Professor Simon in his writings, and from him I received the following reply, dated December 12, 1869, with regard to his case:

"My patient died last summer. At the autopsy, I found in the vagina, above the seat of closure, a stone as big as a pigeon's egg."

A few months after I had learned the unfortunate result, at the end of twelve years, of Professor Wernher's case, and had ascertained, after the lapse of ten years, that time was becoming more and more envious of the success in my first and only case, there came under my care, by a strange coïncidence, a case of spontaneous kolpokleisis, which not only confirmed the two reports just cited, but thoroughly convinced me that the expedient, *at least, was only temporary in its beneficial results, and that, from its liability to be followed in a large proportion of cases by sequences dangerous to life, it ought to be condemned.*

In an article published in the "American Journal of Medical Sciences," of July, 1870, I reviewed the subject, and after sharply criticising the eight indications which Professor Simon had laid down as a guide to the operation, I reported in detail the case of spontaneous kolpokleisis above referred to, which I here copy as an argument in support of the correctness of the position I then took. I said:

"Under our treatment at this moment is a fair example of Nature's kolpokleidic operations, in which, after having covered up and hid away old lesions, she has left the parts in a state analogous to that of surgical obliteration. The results before us teach what are to be expected from the latter, and confirm the previsions of pathological chemistry.

"Mrs. ——, of Mobile, Alabama, aged twenty-three, a perfectly well-formed woman, after a first labor of eighty-four hours, March 31, 1865, lost, by sloughing, part of the lower third of her vagina, which, on healing, left a small urethro-vesico-vaginal fistule, and a recto-vaginal fistule higher up, with loss of con-

trol over the passage of either urine or fæces. Under this persistent local irritation the vagina just below the urinary fistule continued, however, to contract, enfolding both fistules, until by degrees she had regained control over the excretions. Her general health improved, but eighteen months after the first injury, and in the fourth month of a second pregnancy, she miscarried. Cystitis soon after set in, with a profuse discharge of bloody mucus. Five or six days of such painful inflammation continued, recurring at intervals of three or four months. It seemed to be provoked by the exertion of standing or walking too long. Still menstruation remained normal, and general health fair, with increased retentive power. By the end of the third year her vagina seemed completely closed; she lay dry all night, and could walk about in the day for several hours at a time without dribbling. But now came a change for the worse. Upon over-exertion she became conscious of a fullness, as though something in the lower part of the vagina was pressing to come away, with urging to micturate every few minutes. This trouble increased until it culminated in an attack of cystitis. The urine, now always turbid, deposited a thick tough slime, and smelled very strong after standing a little while. A year ago fatigue in nursing a friend brought on a severe attack, which continued a whole month. The sanguinolent or brown turbid and offensive character of the urine has continued from that time with variations in degree up to the present date, at which we find it largely mixed with pus. During the past year her health has suffered much; she has become excessively nervous, and her menstruation painful. A deep-seated pain is assigned to the left ovarian region, and soreness is complained of over the whole abdomen. Since last autumn the flow has lasted but two days, and the epochs been retarded eight or ten days. Excruciating lumbar pains coïncide with the cystic exacerbations at intervals of only eight or ten days. She has repeatedly swooned from their severity, and remained for hours unconscious. This unrelenting march in the gravity of her condition produced a state of anguish which, without positive derangement of mind, still urged toward suicide, but in this contention of spirit wiser counsels happily prevailed, and she has sought from the resources

of surgery a salvation to which Nature has proved inadequate, although she had effected complete kolpokleisis, '*that most important plastic operation which, in the last decennia, has originated from one single man!*'

"*Actual State, March* 10*th*, 1870.—The vagina admits only a No. 6 bougie. The urethra is closed half an inch from the meatus. The vulva is much excoriated, with scalding on passage of urine, which has been the case from the first. Attempts to dilate the vaginal stricture cause extreme pain.

"*Preliminary Operations.*—Our first indication being to restore the vagina, we proceeded, after etherization, assisted by Drs. T. C. Finnell and J. H. Hinton, of New York, to cut deep into the cicatricial band, from one-half to three-fourths inch thick along its sides. Then we incised the posterior wall, introduced our speculum, and exposed the vagina above, which was deeply congested and dotted with little red spots over its anterior wall. A small urethro-vesico-vaginal fistule was brought into view, just within the point of vaginal occlusion, and admitted a No. 4 bougie. The vaginal surface for nearly an inch above this point was studded with granulations that bled at the slightest touch. The neck of the womb was much enlarged, and its mouth patulous. Pus escaped with the urine through a catheter in the bladder. We all three verified the purulent character of this discharge. The recto-vaginal fistule was reopened by our dilatation of the vagina. Spontaneous atresia of the vagina had here restored continence of urine by drawing the small fistule up into the cicatricial band. The vaginal muscles could then aid the sphincter vesicæ in controlling the flow of urine through the urethro-vesical and vaginal orifices almost in juxtaposition. The urine, however, flowing into the vagina, had attacked its mucous membrane and the cervix, as betrayed by their congested, hæmorrhagic, and patulous state. Endometritis and ovaritis had supervened upon the cystitis and vaginitis. The discharge of muco-pus tinged with blood is now about half a pint in twenty-four hours. The subjoined analysis by a highly competent person—Dr. William B. Lewis, of this city—was made on a specimen of the urine drawn at the last exacerbation of our patient's cystic trouble, which occurred a few days after the operation pre-cited:

"March 18th.—Odor pungent, aromatic. Color and appearance, reddish, densely turbid. Sediment, after standing, one-eighth bulk of specimen, rather close, but light, of a brownish-white color. Reäction alkaline. Specific gravity, 1025. Earthy phosphates completely precipitated from supernatant fluid, but chlorides abundant. Albumen, half of the whole volume. Microscopical, oil globules, minute crystals of triple phosphates, pus corpuscles, amorphous urates and epithelium from the bladder. No casts were found. If present, they would be discovered with great difficulty, as the strongly-marked chemical characters of the specimen cloak the organic sediments and render their microscopical characters indefinite.

"'The objects discovered by the microscope are in great part such as are naturally observed in alkaline urines. The features of this specimen indicate that the cystitis from which the patient suffers is largely due to retained urine and pus. The large proportion of the latter accounts for the albumen present.'

"We should state here, while the general character of the urine in this attack remained the same, as observed by the patient for months before this preliminary operation, there was marked amelioration in her sufferings. Only a few moments at one time was the pain so severe as to cause swooning. The paroxysm was much shorter than usual, lasting only about two days, but the flow of mucus and pus continued the same as formerly, though diminished in quantity.

"The patient's good constitution and the conservative reäctions of her organism during the earlier stages of her traumatic malady, its continued and vigorous efforts for self-recovery, more frequent in ratio to the local irritation; in short, the whole picture before us confirming and elucidating the pathologic history forbids us to attribute the decline of health or sympathetic sufferings to other than hydraulic and chemical causes; viz., the stagnation of urine retained in contact with mucous surfaces unprepared to resist its irritating salts, and whose exudations of protective mucus have but increased the mischief by accelerating putrid fermentation. To open a free passage for the discharge of these morbid secretions is the first step dictated by experience towards removing their causes.

"We do not exhibit the foregoing as anything more than the particular application of a general principle. Lesions, apparently the same, occasion different degrees of suffering in different patients. European, and especially German, peasant-women, may be more robust, more phlegmatic, than our American women, but chemistry and mechanics are invariable. To their laws are due the fearful sufferings we have witnessed in case of spontaneous kolpokleisis, and we venture to suggest that if the luminaries of German surgery will descend from their Olympian heights, look up their kolpokleidic cases, and look into them again, they will see cause to change the note of triumphant gratulation with which Professor Simon announces his successful operations.

"In the annals of surgery, nay, even in those of psychology, we have met with nothing more astounding than Professor S.'s assertion, by a gentleman of Professor Simon's rank in our profession, that, after effecting kolpokleisis, the urine becomes healthy and does not harm the uterus, when we consider the deep pocket formed in the vagina with no other outlet than the small fistule into the bladder. These fistules, moreover, are very often found at the highest point of the vaginal pocket, thus favoring the retention of urine, which at every menstruation will be mixed with the blood of this eliminative secretion, an admixture which can hardly fail to promote decomposition and its irritative sequences. Would Professor Simon attribute then to the vaginal mucous membrane the property of arresting fermentation, of preventing those well-known changes which urine undergoes when long confined in the bladder, forming earthy deposits, calculi, and acrid ammoniacal lixivia?

"What is vesico-vaginal fistule? A solution of continuity, maintained in the vesico-vaginal septum by the passage of urine, the contact of which is a chief obstacle to the process of healing.

"In what does the cure of a fistule consist? In the union of its edges without serious lesion to the functions of the bladder, vagina, or uterus. No result inferior to this is a true cure, however complete the continence of urine. This physiological standard should never be lost sight of in our choice of remedial methods. What is kolpokleisis? The conversion of the vagina

into a urinal, with prevention of the sexual act and generative function, restricting the uterus to the part of an excreting organ. Per contra, it claims to obviate the incontinence of urine.

"Of Professor Simon's eight indications for kolpokleisis, we recognize as valid only the first one; viz., a loss of substance such as to prevent the coäptation and consequent union of the fistulous borders.

"No loss of substance can prevent a cure so long as the womb can be drawn down to fill the aperture. In cases where this seemed impossible at first, it has gradually yielded to our daily tractions with polypus forceps on the cervix and stretching of the surrounding tissues, until the two sides of the fistule would meet. This once effected we feel confident of cure by our button-suture. Since its invention we have never had recourse to incisions, in order to relax tissues and take the strain off our sutures, as Jobert was so much in the habit of doing, and as Professor Simon, after condemning it, has been fain to practice likewise. Even when a force of several pounds has been needed to bring the sides together, our button-suture has always sufficed to maintain them in apposition until their complete union. Incisions we apply only to the preliminary treatment of cicatricial bands, or to points of atresia, which, after opening, we dilate with tents, not attempting to close the fistule until we have removed, as far as possible, such obstacles.

"All Professor Simon's indications pre-cited, except the first, have been met and overcome in our practice, without having recourse to kolpokleisis. At 'uretero-uterine' fistules, indeed, we may place a point of interrogation, for their diagnosis does not appear to us well founded in the cases stated. Bérard describes such a case in full detail. He injected colored fluids into the bladder; he introduced a probe into the cervical canal, and another through the urethra, so that it should strike the first, if a fistulous communication existed. He measured separately the fluid escaping from the vagina, and what escaped from the urethra; he smelt what escaped from the os uteri. Now such means may aid in ascertaining the existence of a vesico-uterine fistule, but they can not determine whether the communication between the uterine cavity and the urinary apparatus occurs at

a point beyond that of the normal contiguity of these organs. A fistule $x + y$, of track unknown, may exist; the pre-cited means of diagnosis may fail to prove it vesico-uterine; they can not, however, prove it uretero-uterine, and we have seen vesico-uterine fistules in the diagnosis of which they failed, because of the extreme smallness of the fistulous track and its valvular condition. We have been unable to pass a colored fluid through it from the bladder in quantity sufficient to be seen in the cervical canal; nor could we pass a probe, however delicate, in the same direction, yet the two streams of urine—one from the vagina, the other from the bladder—always flowed separately. Was this a proof that the urine of the vaginal stream came from the cavity of the womb? Post hoc, ergo, propter hoc, will not answer here, as the linen test has frequently attested in our hands. By this test we have detected the precise situation of a passage between the bladder and the cervical canal, even when the fistule was too small to be seen by the strongest reflected light. In one case cured by us January, 1869, the point of communication with the cervical canal was near the internal os and the fistulous track above, bounded only by the utero-vesical fold of peritoneum; this membrane was punctured while operating, but no serious consequences ensued. Here, even when the cervical canal was fully dilated, a strong reflected light failed to reveal the fistulous orifice, although while the patient lay upon her back the urine flowed freely from the os externum. Now, on mopping dry the cervical canal, and laying a bit of old linen on its anterior wall, its saturation showed at once the orifice at that point, by closing which we cured the patient.* No organ was injured, no function compromised by our operation."

With regard to the subsequent history of the case above cited, I have only to add that the improvement which was indicated after the preliminary operation was continuous. Under repeated incisions and gradually increased distention of the vagina, one sequence after another slowly disappeared, but it was not until the dilatation had been carried to a diameter exceeding six centimetres, which required several months to accomplish, that

* For the linen test, see our more extended notice in the "Transactions of the New York State Medical Society," p. 154, 1869.

the bladder was found to be in a sufficiently healthy condition to justify its closure by suture. One operation with my button-suture proved sufficient for this, and several months later a like result by the same means followed the operation upon the recto-vaginal fistule. The latter at the time of the operation was almost large enough to admit three fingers into the rectum. This augmentation in size resulted from the inelasticity of the surrounding inodular tissue and the high degree of vaginal dilatation found to be necessary; but, notwithstanding this seemingly grave complication of the preparatory treatment, it proved of no consequence, as, by gliding healthy tissue from above, the closure of the fistule was easily effected at a single operation. At the end of eight months the patient was discharged perfectly cured, with preservation of the functions of all the organs involved—a condition of health in which she has continued ever since, now nearly seven years. Only a few weeks ago I heard from her, and the report was most satisfactory.

The lessons of the above case are most instructive. In this instance, kolpokleisis, resulting from the blind operations of Nature, was scarcely less effective than if it had been produced by the knife of the most skillful surgeon. Yet how important it was to undo Nature's handiwork in order to save the life of the individual. Like causes produce like effects, and there is no reason to think that the results in this case would have been better had kolpokleisis been effected by the surgeon's knife, no matter how expertly and judiciously it might have been used.

It is scarcely necessary to say that, holding this opinion, I visited Heidelberg in the autumn of 1874, to learn from personal observations what I had so long wished to know; namely, the German operation for vesico-vaginal fistule, as performed by the master himself. I was most kindly received by Professor Simon, who invited me to take part in the treatment of a considerable number of cases which he was then expecting to enter the clinic of the University, thus showing himself to be the true physician. Our distinguished confrère, Mr. Spencer Wells, was present at the opening of the *concours*.

Tabular Statement of our Operations at Heidelberg.—Seven operations in the aggregate were performed upon six cases—

four by Professor Simon and three by me (two jointly upon the same patient). Professor Simon has described all these cases and operations in his article, together with the five additional operations which he found necessary to complete the treatment after my departure from Heidelberg.

Our results may be tabulated thus:

Upon 7 fistules in 6 patients 13 operations were performed.

CASE I.*—Upon 1 fistule in 1 patient 3 operations were performed by Professor Simon; completely cured with preservation of the generative functions, but only partial restoration of continence of urine, owing to loss of urethral substance from repeated operations.

CASE II.—Upon 1 fistule in 1 patient 2 operations were performed by Professor Simon; the first—six years previously—for completing a morbid kolpokleisis in the urethral portion of the vagina, with complete loss of the generative functions; the second for reclosure of the same obliterated point after it had been reöpened by the passage of a calculus. Death on the sixth day. Autopsy showed suppurative pyelitis of both kidneys and the blocking up of the left ureter by a calculus.

CASE III.—Upon 2 fistules in 1 patient 2 operations were performed by Professor Simon, after the removal of a previous kolpokleisis by another surgeon, with restoration of the normal outlet of the catamenia and of continence of urine, though a ring-formed contraction of the vaginal orifice still remained as a serious impediment to the generative functions.

CASE IV.—Upon 1 fistule in 1 patient 3 operations were performed by Professor Simon, after incisions and immediate distension of the vagina, with restoration of continence of urine, and maintenance of the normal outlet of the catamenia; but there afterwards remained obliteration of the vagina above the fistule to the size of a No. 10 bougie, and loss of generative functions.

CASE I.—Upon 1 fistule in 1 patient 1 operation was performed by myself, and was completely cured, with entire preservation of the generative functions.

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* The numbering of the cases in the above table corresponds with the order in which they were reported in the Paper of Professor Simon. See the "Obstetrical Journal, vol. iv, p. 436 et seq. and Wiener Med. Wochenschrift.

CASE II.—Upon — fistule in — patient 1 operation was performed by myself, after seven-eighths closure of the original fistule by Professor S. (little Russian), with the result of almost complete closure; but the success was afterwards lost by reöpening of the fistule, due mainly to an abnormal relationship of the parts, brought about by the preceding operation, which result could only have been avoided by reproducing the original fistule and making the closure *de novo*.

CASE III.—Upon 1 fistule in 1 patient 1 operation was performed by myself (after the patient had been pronounced incurable by Professor Simon, and condemned to complete obliteration of the vagina—kolpokleisis), with complete preservation of the generative functions and closure of the fistule to a point, quite simple, and admitted by Professor S. himself to be easy of cure at another operation.

Of the four cases treated by Professor Simon and estimated by my standard of cure, one (25 per cent.) came completely up to it, and two partially, with a death rate of 25 per cent.

Of the two cases treated by me individually, one came completely up to the mark, and the other so near it that no one for a moment questioned the practicability of its completion at another little operation—100 per cent.

ECLECTIC DEPARTMENT.

"Carpere et colligere."

ART. 1.—*Congenital Occlusion and Dilatation of Lymph Channels.* By SAMUEL C. BUSEY, M. D., Washington, D. C., Prof. of the Theory and Practice of Medicine, Medical Department of the University of Georgetown; one of the Physicians to the Children's Hospital; and Physician to the Louise Home. (With numerous wood engravings.)

(*Continued from page 376 October No.*)

CASE LII.*—F. N., aged nineteen years. When one year old the right thigh was larger than the left, more or less so according to the use of the limb. When four years of age, after a short walk, without unusual exertion, the right thigh

* Thilesen, Zeitschrift f. Klinische Medizin, Bd. 7, p. 447, 1856.

was observed to be double the size of the left. The swelling extended from the groin to the knee, was not sensitive or painful, and was covered with normal colored skin. It remained, now larger, now smaller, but occasioned no inconvenience. After a while the skin upon the anterior and inner aspect and towards the scrotum thinned in several places, forming small shining spots slightly elevated, which ruptured spontaneously and discharged a yellowish-white, opalescent, somewhat tenacious fluid, which, upon exposure to the air, coägulated into a jelly-like mass. When the rupture occurred while walking, the fluid would jet out for several feet, and sometimes a pint or more was lost, which would be followed by a sense of great exhaustion, paleness, and languor. These discharges recurred three or five times during a year, and continued for thirteen years, during which time the swelling extended to the leg and foot, and similar thinned spots formed upon the plantar surface and between the toes, but none appeared upon the leg. When ten years old, without discoverable cause, violent pains around the right trochanter, extending across the right gluteal region and down the thigh and leg, supervened. At the same time the extremity from the groin to the sole of the foot began to enlarge more rapidly, the thigh attained the circumference of the body of an adult, and the foot and leg increased in proportion. Subsequently, a large abscess formed in the gluteal region, which after a time ruptured and discharged during several months large quantities of pus, and after it healed the thinned spots developed into transparent vesicles, the size of peas, containing a clear liquid, the integument thickened and felt firmer, the epidermis roughened, the furrows deepened, and the papillæ enlarged. The limb enlarged throughout its whole length, and numerous vesicles formed upon the anterior and inner surface of the thigh, and upwards towards the groin and scrotum, reaching one and a half lines in height, transparent and filled with a watery fluid. The contained fluid could be pressed back, but immediately returned upon the removal of the pressure. One of the larger cysts was opened and the evacuated fluid proved, on microscopic examination, to be lymph. Finally, pleuritis set in, and the patient died.

Autopsy.—Skin hypertrophic throughout all its layers; more so upon the anterior and inner part of the femur. Throughout the hypertrophied portion was a large meshy net of dilated lymph vessels, some of which had attained the size of goose-quills. The most superficial vessels could be traced into the cysts projecting from the skin, and they were ampulla-like dilatations of the extreme ends of these vessels, with thinning of their walls. Upon the lymphatic trunks situated outside of this extremity nothing abnormal could be discovered. The lumbar muscles were atrophic. The connective tissue of the lowest portion of the leg was infiltrated with pus; the articular cartilage of the lower end of the tibia was destroyed; the ends of the bones carious; the ligaments destroyed; tarsal bones carious. Tubercular deposits in both lungs beginning to soften; small caverns in left lung. Tubercular deposits in liver, spleen, and other abdominal organs.

Case LIII.*—A laborer, aged twenty-two. Right thigh began to swell a year previous to admission to hospital, first at the upper part and then gradually downwards to the toes. Skin not changed in color; no pain in the part. Small openings appeared about the middle of inner side, from which a milky fluid exuded every three or four weeks, and his leg and foot began to grow and became very firm. Before admission the thigh was enlarged throughout its whole extent, and since, the scrotum and penis became involved in the swelling. Left leg quite natural; appearance strumous; dissipated. The right leg is one-third larger than the left, of natural color and temperature; imparts to the touch a feeling like a female mamma distended with milk. There was a sensation of hard irregular cords lying in a brawny structure. No œdema. Towards back of thigh, and scattered over the lower half of its extent, were numerous vesicles, varying in size from a pin's head to that of a pea. No redness surrounded them. From them the milky fluid was discharged, and when tapped it exuded drop by drop. The fluid separated on standing into a rounded coägulum, smooth and shining, and a watery-looking fluid. It contained bodies resem-

* Hilton, London Lancet, 1866, volume ii, p. 37. Acquired. Introduced for comparison.

bling lymph-corpuscles, granules and fatty molecules, albumen, fibrin, but no sugar.

The cases 48, 49, 50, 51, 52 and 53 present very many points for discussion, some of which will be deferred until other cases presenting similar conditions have been introduced. The case of Friedberg (48) is, perhaps, the most remarkable instance of colossal giant-growth on record. Chassaignac's case (38) of congenital hypertrophy of the extremities of the right side, with multiple sanguineous blotches and varices, and another case of enlargement of the arm, referred to by Friedberg, are somewhat analogous. A description of the latter case was found by Meckel von Hamsbach in the posthumous papers of his uncle, and represents the length of the right arm to be such as to reach down to the middle of the leg. All the tissues, including the bones, were hypertrophied, and the increase was most striking towards the lower end of the extremity. The patient of Chassaignac affirmed that he had three times as much force in the members of the right side as in those of the left; in Friedberg's case the power in the affected limb, though not commensurate with the enormous development, was increased; in Paterson's, in which the abnormality was limited to the superficial lymphatic vessels of the right lower limb, there was no increase of the muscular tissue, though motion was perfect, but painful, and never voluntary. In Smith's case of nævoid elephantiasis (9) the muscles of the diseased limb were healthy and of normal size, the blood-vessels were enlarged and temperature increased. The patient could move the limb, but could not raise it. In Reid's case (35) the excessive growth of the member was due to the relative increase of the muscles and bones. The adipose was not appreciably increased, but the cellular and cutaneous tissues were developed uniformly with the muscular and osseous. The arterial system of the hypertrophied limb was enlarged, and the temperature was augmented. The patient could move the arm, but pronation and supination were imperfect. In the cases of excessive adipose formation, mobility and power were uniformly impaired, and in those cases where the observation was made the temperature of the part was below the normal. In such cases sensibility was diminished in consequence of atrophy of the nerves of the part.

The constant coëxistence of nævi, both in the giant formations and lymphatic developments, is a somewhat singular phenomenon. Chassaignac's case was complicated with multiple sanguineous blotches and varices on the affected limb. In Adams' case a superficial nævus was located on the affected limb. In Gherini's case, the skin was red, with circumscribed bluish spots. In Friedberg's case an ectatic venous cord coursed along the centre of the dorsum of the foot, and nævi formed upon the hypertrophied hand during the progress of the disease. The skin of the hypertrophied arm in Reid's case of increased nutrition of the left thoracic extremity presented a number of red patches, some very large. In Smith's case the surface was extensively stained with a dusky red subcutaneous nævus. In Demarquay's case a small nævus developed in the groin during the course of the affection, and in my own case (number 1) several nævi were present, and the vein, as shown in figure 3, coursing between the cluster of vesicles and the anterior margin of the limb, is enlarged, and presents a tortuous outline due to increased length. In the two cases (Friedberg and Demarquay) in which nævi were developed during the progress of the disease, inflammatory processes preceded the nævoid developments, and it is not improbable that the congenital nævi may have been formed during inflammatory processes taking place during intra-uterine life. In the congenital cases, in which the proliferation of tissue has resulted from stasis of lymph, there are no manifest or objective inflammatory phenomena, but a condition remains which finds its cause in changes already effected, which produce stagnation or a supply in excess of the capacity of the effluent vessels. Smith suggests that there are three forms of congenital hypertrophies, differing as the altered nutrition may depend upon an augmented supply of blood or lymph, or, as he erroneously supposed, of chyle.

By comparison of the several parts of the enlarged and elongated extremities in these cases, it is found that the abnormal increase of the length increases towards the distal end of the extremity. In Friedberg's case the leg increased in length faster than the thigh, the foot faster than the leg, and the toes faster than the foot. This phenomenon was also exhibited in

several of the cases of partial growth, confined to a portion of an extremity, most notably in the case (45) reported by Curling. The character of the growth in the cases of Friedberg, Chassaignac, and Meckel, differed. In Friedberg's the leg was everywhere full and rounded, whereas in Chassaignac's the hand was larger in proportion than other parts of the arm, and in Meckel's case the arm was irregularly formed.

The development of the right leg and of the upper extremities in Friedberg's case exhibits very different phenomena. The leg seems to have been an instance of true hypertrophy, and the probability is that all the tissues were uniformly hypertrophied. Power, though not commensurate with the increased volume of the limb, was preserved, and motion, necessarily awkward and incomplete, was never painful. The arms were irregularly enlarged, and the hand grew in excess of the other portions. These irregularities in the growth of the upper extremities were due to circumscribed and irregular formations of the connective and adipose tissues. The disease manifestly began during fœtal life. Friedberg suggests that the conditions may have originated from some affection of the vaso-motor nerves; or from impediment to the circulation in the lymph vessel, produced by a swollen lymph gland or other tumor; or from a morbid composition of the blood, and consequent infiltration and proliferation of tissues; or from inflammation of the skin and subcutaneous connective tissue, lymph glands, and vessels. The dilatation of the cutaneous veins upon the inner side of the left arm, the hæmorrhagic vesicles, the grouping of the evidences of disturbed circulation around the left clavicular and sternal regions, the enlargement of the chain of lymph glands along the left inferior maxilla, and on the left side of the neck, the formation of a network of hard, nodulated, movable thin cords, over which the skin was occupied by light yellow vesicles, and the other evidences pointing to morbid conditions of some part of the lymphatic system, suggest probable obstruction to the flow of blood in the left innominate vein, which extended its influence over the adjacent portions of the lymphatic and venous systems. The case presents the coëxistence of venous telangiectasis of the skin, dilatation of superficial

veins, ectasia of lymph vessels, lipoma, and diffuse proliferation of the adipose and connective tissues.

In Day's case there can be no doubt that the disease had its origin in some derangement of the lymphatic circulation, and Dr. Day was correct in ascribing the over-growth to the retention in the affected parts of lymph, which he regarded as a nutritive fluid.* In this opinion Paget† and Broadbent, who examined the case when presented to the Clinical Society, and Drs. Sanderson‡ and Callender, to whom it was referred for a more careful examination, concurred. The growth of the limb was due to the infiltration of the fibrinous fluid into the subcutaneous cellular tissue. As the child could resist more strongly with the right than with the left leg, it is probable the muscles were increased in size. The committee were satisfied that the bones were also enlarged.

So far as the observations can be relied on, the cases of Day, Demarquay, and of Mr. Hilton, in which similar phenomena were present, though in the latter the condition was acquired, the direct relation of lymph stasis to these developments is established, for in each case the chemical and microscopic examination and physical properties of the fluid leave no doubt as to its nature. But the case of Thilesen is even more conclusive.

The continued presence and increased growth of the tumor in the latter case, often varying in size and unaccompanied with change of color, pain or sensitiveness, exclude any possibility of the presence of either acute or chronic hyperæmia, and the absence of any lesion referable to the blood vascular system excludes any connection of the enlargement with venous stasis. On the contrary, the presence of meshes of dilated lymph vessels, their direct communication with the cutaneous vesicles, the development of the cicatricial spots into vesicular formations, and the rapidity of the growth in those parts most abundantly supplied with capillary lymph vessels, and furthermore, the first appearance of the swelling in the region very rich in networks of lymph capillaries, show conclusively that the alteration of the

* London Lancet, vol. i, 1849, p. 462.

† Ibid., Debates before the Clinical Society.

‡ Trans. Clin. Soc., Lond., vol. ii, p. 113.

nutrition of the parts was due to some defect in the lymph circulation. The swelling followed the course of the large superficial lymphatic branches, ascending from the foot and leg and running along the vena saphena, and of the lymph vessels proper of the thigh, emanating from the rich network upon the inner and posterior aspect, and penetrating the entire tissue of the integument down to the fascia, and also those sending branches upward towards the superficial inguinal glands, and encircling the inner and external half of the thigh. Unlike Friedberg's case, cases 49, 52, and 53 were unaccompanied with any inflammatory process, œdematous infiltration, or phlebectasis, but in Paterson's case (51), which differed in so far that the varicose lymph vessels were on the surface of the extremity, and could not be traced in anastomotic connection with the deep-seated vessels, there was a profuse transudation of a watery fluid. There was no lesion of the blood vessels. The fluid was lymph, but poor in nutritive elements, and the only change observed in the tissues was hardening and condensation of the cellular tissue in circumscribed localities.

In Thilesen's case the changed growth was without inflammatory concomitants, and manifestly due to the retention and altered elaboration of lymph. A serous infiltration may be caused by hydræmia, mechanical impediment to the circulation of the blood, especially in the veins, or from defective absorption. In either case a change in the nutrition of the parts may ensue. The formation of the vesicles, the development of the cicatricial spots into vesicles, the lymphorrhagia, the chemical and microscopical characters of the discharged fluid, and the post-mortem appearances, leave no doubt in regard to the lymphangiectasis, but other conditions were present during the progress of the case, which Thilesen insists are sufficient to determine the presence of a lymphatic varix. Phlebectasis is excluded by the absence of pain, of dilatation of the superficial veins and changed color along the varicose veins, and of a single hard cord along the course of the affected vein; by the non-appearance of œdema in the neighborhood of the ankle and on the dorsum of the foot during the earlier stage of the disease and its gradual extension upwards. The infiltration in phle-

bectasis results from increased transudation in consequence of increased blood-pressure in the venous radicles and their dilatation, or from interrupted venous circulation. The accumulated fluid is consequently watery, poor in solid constituents, and the resulting swelling would present all the characteristics of ordinary œdema. Absorption may be normal, or perhaps increased, and with rest of the affected limb the intumescence would probably disappear entirely, or diminish. In consequence of the poverty of the fluid the changes in nutrition are very slow, and the enlargement partakes more of the nature of an anasarca than an hypertrophy; and finally, phlebectasis is usually connected with some constitutional affection or distant local disease, and attacks the most distal parts, where the circulation is least supported by the muscles. Lymphangiectasis is usually found in circumscribed localities, where the networks of lymph capillaries are most numerously distributed. The swelling is more diffused, not in the form of single hard cords, is more resistant, and the surface is unchanged. It usually extends downwards, and is not so much influenced by continued rest and the posture of the affected limb. In lymphangiectasis there is also an accumulation of fluid, resulting from diminished absorption or interrupted lymph circulation. The fluid consists of the normal preëxisting parenchymatous fluids, the nutritive juices continually conveyed thither, and partly of the fluids consumed by the functions of the parts and saturated with organic débris. It is, however, more abundantly supplied with organic elements, as well of the progressive as retrogressive metamorphosis, with albumen and fibrinous substances, than the accumulated fluid in phlebectasis and ordinary œdema. The tumor, therefore, says Thilesen, "offers characteristics from the beginning different. Formed of a more consistent, coägulable, and partly organizable material, it possesses greater consistence, is nearly compact to the touch, which will increase as the fluid undergoes peculiar changes during its retention in the parts." The developments are peculiar, not altogether unlike phlegmasia and scleroma, and similar to Virchow's lymphatic hydrops, which more frequently than the ordinary œdematous fluid, if, indeed, this ever does, becomes inspissated and is assimilated, leading to

hypertrophy. Thilesen attributed the pus formation to over-distention and accumulation of organizable material without corresponding power of assimilation, whereby a large part of the mass remained in a lower degree of development, in the form of pus cells. The pus collections necessarily partook of the nature of cold abscesses, and were located in the connective tissue. This, he also maintains, constitutes another distinctive feature of the case, for pus formations in phlebectasis usually begin in the coägula formed within the varicose vein, is associated with acute symptoms, and may result in purulent absorption.

This group of interesting cases may be properly followed by another group exhibiting lymph varices under very different conditions.

Case LIV.*—A child, aged three years, had phymosis and adhesion of the prepuce to the glans penis, also along the raphé of the scrotum, extending from an inch in front of the anus to the glans penis, an elevated sinus with transparent walls of about the size of a crow's quill, closed at both ends, and nearly filled with a whitish cream-like fluid, which could be seen to pass from one point to another when pressure was made.

Case LV.†—A man aged twenty-nine. Entered hospital for urethritis following suspicious coïtus. Had always carried on the posterior portion of the raphé of the scrotum two little enlargements, of soft consistency, variable size, globular, of transparent white, less colored than the neighboring skin. They attained the size of a pea, opened spontaneously, and from them oozed an opaline, whitish, milky liquid. From the fistulous openings a variable quantity of lymph was discharged, which could always be increased by pressure from behind. Later, new vesicles formed at the root of the penis and underwent the same evolution. The prominences and fistulæ were ranged along an antero-posterior line; a projecting cord, irregular, knotted, brownish, extending from the anus to the base of the scrotum, at which point it presented two larger fistulous vesicles. Further on the cord was less perceptible, but to the touch its irregular

* Hamilton, Buffalo Med. Jour., volume vi, p. 11, 1850–51.

† Zambaco, L'Echo Medical, Tom. iii, p. 66, cited by Blinet.

and unequal form was appreciable. At the level of the prepuce there was an increase of volume. The fluid was lymph.

CASE LVI.*—A man, aged twenty-eight. Had upon the inner surface of the right thigh, close to the side of the scrotum, about two dozen clear, small vesicles, very similar to herpes vesicles, a little larger than pin heads, in part confluent, scattered over a space not larger than a hand, which he had first observed in his tenth year. Between the vesicles, which were in close proximity to each other, a connecting duct could be distinctly demonstrated, which upon pressure projected with moderate tension, while at the same time the vesicles diminished. The discharge, which recurred several times during a year, and continued sometimes three days, presented under the microscope all the characters of lymph. It was increased by pressure made upon the inguinal region, but only appeared guttatim.

CASE LVII †—A boy, aged eighteen. While quietly sitting in school, felt a liquid trickling down his leg from the genitals, which continued five hours. It was a milk-white fluid, and ceased spontaneously. After six months the discharge recurred, and afterwards was repeated every three or four weeks. Müller, of Würzburg, whom he consulted, observed upon the scrotum a multitude of pale yellow vesicles, more upon the right than upon the left. From one of the largest which he punctured a milk-like fluid was ejected in a jet, which upon chemical examination proved to be lymph. Subsequently, in the presence of Früninghausen, Textor, and Schönlein, one of the vesicles was nipped with scissors, while the patient was in a horizontal position, whereupon a yellowish, odorless, tasteless, lymph-like fluid was discharged, which, after continuing to flow for one hour, changed into a milk-like fluid. In the yellow fluid, after standing a day, a yellow cake floated, which appeared like a membrane arranged in layers, and resembled jelly; beneath it was a cake of darker color. In the milk-like fluid a cake also

* Communicated to Gjorgjevic by Professor Gault. Archiv f. Klin. Chir., Langenbeck, Bd. 30, p. 674.

† Wiedel, Inaug. Abhandlung, 1837. Müller, Huflands Jour., Feb., 1822, p. 81.

formed, and beneath it an albumen-like membrane of the thickness of a knife. The discharged fluid was pronounced lymph. This condition continued until he reached the age of fifteen; then the scrotum became suddenly inflamed, red, very painful, and enlarged to three times its size. The inflammation extended to the perineum and adjacent skin; a large tumor formed between the scrotum and anus, which subsequently ruptured and continued to discharge a considerable quantity of watery fluid. In consequence of these continual losses his strength gave way and he died of phthisis pulmonalis.*

Case LVIII†.—A boy, aged ten, a Brazilian, had upon the prepuce an opening, from which, after the removal of a small occluding scab, was discharged a fluid slightly colored red from the presence of red blood-corpuscles, and which after standing became milk-white. The scrotum, without being very much enlarged or otherwise degenerated, had upon its surface numerous white vesicles, from which, when punctured, poured a milk-white fluid, sometimes in very great quantities. The fluid discharged through the preputial fistula came from a varicose lymph vessel, and as was shown by compression proceeded from the root of the penis. The fistula was supposed to be connected by dilated vessels and degenerated glands with chyle-containing trunks, because of the character of the fluid, which was lymph mixed with chyle. It was slightly alkaline, and after standing deposited white coägula, here and there dotted with red spots, soft, and not compact, having the form of a bag containing a white fluid. In the fluid lymph corpuscles were sparse, but there were numbers of granules, which ran together, forming fat drops. It had a faint, but not disagreeable odor. Cream formed upon its surface. It contained albumen, watery and alcoholic extracts, fat, and cholesterine. The quantity of fat varied with the amount of fatty food ingested.

The varices in cases 54, 55, 56, 57, and 58, so far as could be determined by exploration, were limited to the superficial lymph

* It is possible that cases 56 and 57 may belong to the acquired forms. This is, however, doubtful, and hence their introduction here.

† Hensen, Archiv f. die Gesammt. Physiolog. des Menschen und der Thiere, Bd. x, p. 94, 1875.

vessels, which feel under the finger, when of the cylindrical form, like "hard, knotted, flexible" cords; when ampullar like rounded tumors, unattached to the skin, are depressible and resume their form when the pressure is removed. It is not possible to recognize varices of the deeper system of lymph vessels, but such a condition may be inferred when, without (Phillipe Aime-David) any appreciable cause, the enlargement of a limb is associated with a varicose condition either of the plexuses or subcutaneous vessels insufficient to account for the tumefaction of the limb. To the consideration of the forms and causes of these varices I will again recur when other cases have been reproduced.

Case LIX.*—In his paper on Makroglossia, Virchow refers to the very singular case he observed in a new-born calf, where, in consequence of thrombosis of the external jugular vein, the mouth of the thoracic duct was occluded, and nearly all the internal organs were dilated to the utmost by ectatic lymph-vessels with a slightly sanguinolent fluid. The intestines especially were covered everywhere with broad bead-like canals, arranged so closely together that the intervening tissue could be scarcely recognized.

Case LX.†—A specimen obtained by M. Amussat from the body of a youth aged nineteen years. During life the boy carried in each groin a large tumor, which was supposed to be double inguinal hernia, and for which he had worn a truss. Suddenly, in the morning, having the previous day made a long journey on foot; he was seized with acute pains under the right breast, and in the folds of the groins, difficult respiration, dry cough, cephalalgia, fever, and lancinating pains in the tumors. This condition became aggravated, and after some hours of intense suffering the patient died.

Autopsy, twenty hours after death. — Numerous spots on

* Virch. Archiv, volume vii, p. 130. This case is an illustration of the effect upon the lymph vessels connected with the main trunk, of any interruption to escape of the chyle from the thoracic duct. This, together with other cases which belong to the acquired forms, will be discussed in the paper appearing in the N. O. Medical and Surgical Journal.

† Cited by Breschet, Le Système Lymphatique, Paris, 1836, p. 260.

different parts of the body; putrid decomposition; the skin generally ecchymosed; that of the lower extremities of a deep violet color. A thin membrane covered the tumors. After removing the membrane, a knotted sac, irregular like the spermatic vesicles, was discovered. The sac contained purulent matter.

FIGURE 35.

The abdominal cavity contained a large quantity of sanguinolent serum, but no pus; no trace of peritonitis; on the left side the cyst containing the pus extended in the crural sheath to the inferior third of the thigh; on the right side the purulent collection did not pass so low, but pressed under the crural ring.

The right pleural cavity contained pus and red serum; the left side but a small quantity; right lung engorged with black blood and froth, adherent at its upper part.

After having turned out the thoracic viscera, diseased lymphatic vessels were discovered. Some were as large as quills. The entrance of the thoracic duct into the subclavian vein was recognized. The mass of dilated and twisted vessels extending to the iliac fossæ was dissected out, and is represented in figure 35.

The iliac and crural masses of lymphatics were insufflated and unraveled, and it was discovered that the hernial tumors were enormously dilated lymphatic vessels. The iliac ganglia of glands had disappeared, and seemed to have been replaced

by lymphatic vessels. No direct communication with the veins was noticed.

The heart, arteries, and veins, the liver, pancreas, kidneys, and bladder were normal. The vesiculæ seminales* were large and flabby; vessels very much injected; persistent arborization; a small quantity of serum in the ventricles of the brain.

The following case, somewhat analogous to the last, has been reported by the late Professor Drinkard,† of this city. The hernial tumor was discovered in the cadaver of a very black negro on the dissecting-table; consequently it can not be determined whether the condition was congenital or acquired.

Case LXI.—The tumor occupied nearly all the superior part of the groin, being rather more to its outer than to its inner side; its upper boundary slightly overlapping Poupart's ligament; ovoid in shape; about four inches in its long diameter, by three and a half in its vertical diameter; baggy in appearance, the skin loose and sacculated towards the inner and inferior portion. To the touch the tumor, at first mistaken for a femoral hernia, was soft, doughy, inelastic, its contents yielding to pressure, but slowly returning when it was removed. It appeared in some parts more compact and consistent than in the rest.

On dissection a thickened superficial fascia was exposed. From the meshes of both of its layers protruded the cellulo-adipose tissue of the region. The tumor presented no connection with either the crural or inguinal ring, and appeared like a mass of cellulo-adipose tissue, interspersed with lymphatic glands evidently undergoing fatty degeneration, and presenting here and there, over its dissected surface and through its substance, patches of a pale rose color, resembling cellular tissue infiltrated with blood serum, and bearing in some points a closer resemblance to fresh muscular tissue.

Dr. Drinkard refers to another case which presented decided

* Several writers have referred to Amussat's cases, and one to his case of dilatation of the lymphatic vessels of the spermatic cord. I have failed to find such a case, and suppose the error has grown out of this reference to the condition of the vesiculæ seminales.

† Amer. Jour. Med. Sci., vol. lvi, p. 436.

similarities to his, which he saw in the service of M. Nélaton (Hôpital des Cliniques), in 1863, and which the latter denominated glandular hypertrophic tumors, which are to be distinguished from those formed of "various lymphatics and exude on incision a limpid lymph." In regard to this case Nélaton remarked as follows:

"The first idea given by the tumor is that it is formed by the testicle, which has become deviated in front of the abdominal aponeurosis, and an omental hernia has followed the testicle, which would give to the tumor the peculiar sensation experienced on palpation."

This, however, he excluded, for the reason that no pedicle traversed the inguinal canal.

In Drinkard's case the course of the lymphatics of the limb, leading to the tumor, was marked by bluish-black lines, which gave the limb a marbled aspect.

M. Trélat * refers to another case, of a young man upon whom M. Nélaton operated by excising a lymphatic tumor. He says:

"The diagnosis being uncertain, an incision was made over the mass, when a considerable quantity of thickish milk-like fluid escaped, leaving only irregular flaps, and some beaded filaments, which were removed. The patient, a robust man, was seized with rigors, and symptoms of purulent absorption, and died. The tumor on the opposite side, which had not been operated on, was injected by M. Sappey, and was shown to consist of a network of varicose lymphatic vessels."

The succeeding case, reported by M. Trélat,† though not certainly congenital, exhibits conditions more strikingly resembling those found in Amussat's (60) case, than either Drinkard's or Nélaton's. The tumors in this case were mistaken by Trélat, Nélaton, and by the physicians of l'ile Maurice for hernial sacs, and their true nature was not suspected during the lifetime of the patient.

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* Gaz. des Hôpitaux, July 5, 1864, and Amer. Jour. Med. Sci., vol., xlix, p. 247.

† Gaz. des Hôpitaux, July 5, 1864, and Amer. Jour. Med. Sci., vol. xlix, p. 246.

Case LXII.—A youth, when fifteen years of age, discovered a small enlargement below the left groin, and soon afterwards, while performing gymnastic exercise, he was seized with severe pain in the right side, which was supposed to proceed from an inguinal hernia. This was reduced and a truss applied, but the region above the pad remained enlarged, especially after walking or exertion. The tumor on the right side descended lower than on the left, but the latter reached as far upwards as the orifice of the inguinal canal, and was lobulated. The right tumor was more projecting, more regular, and softer. The skin was unchanged in color; its surface was regular, normal, and it was movable over the tumors. The swellings were movable over the deeper parts, were soft, could be compressed, felt like lipomata, and were reducible.

Subsequently,* in consequence of a subcutaneous abscess, a fistula was established at the level of the fold of the nates of the left side, about five centimetres from the anus, but did not communicate with the intestine. A few days after an operation for the radical cure of this fistula, the two inguinal tumors became painful, exquisitely sensitive, accompanied with a group of grave symptoms, under which the patient rapidly sank and died.

Autopsy.—The right tumor was situated, in greater part, under the cribriform fascia, in front of the aponeurosis of the psoas and abductors, consisted of lobes approximating each other, was definitely bounded above, below, and at the sides, but behind communicated with the deep lymphatic vessels. From it was discharged, in great abundance, a rose-colored fluid. No hernia could be discovered, but varicose lymphatic vessels occupied the inguinal canal and the superior portion of the cord.

Upon removal of the peritoneum from the posterior abdominal wall, there was observed along the iliac vessels a mass of wrapped conduits rolled together, directed generally from below upwards. This condition existed on both sides. Towards the columns of the diaphragm these two masses approached, and were probably blended together under the diaphragm. These masses were formed by the dilatation of lymphatic vessels, and resembled

* The completed history of this case is to be found in No. 114, Sept. 29, 1864, p. 454, of the Gaz. des Hôpitaux.

exactly the design given by Breschet of the condition found in the case of Amussat. (See figure 35).

In this connection I reproduce the cases of Petit and Aime-David, in neither of which was the diagnosis of lymph varices verified.

CASE LXIII.*—A student for a year had noticed, more particularly after fatigue, a swelling in each groin, which was accompanied with some pain, extending down the thighs. Examination showed tumors in both groins without any change in the color of the skin. The tumors extended into the inguinal canals, were painful to the touch; the pain extended along the saphena, which region presented the characters of angioleucitis. The child left the lyceum and returned in eight days, carrying a double hernia bandage. The former condition returned; the tumors doubled in size; the limbs became œdematous and benumbed.

CASE LXIV.†—Mulatto, about thirty years of age. In consequence of repeated angioleucitis a very extensive enlargement of the legs developed. At the internal region of the thighs there were present prominent tumors consisting of dilated lymph vessels. The tumors were uneven, elastic, transparent, and under pressure receded into the abdomen.

Aime-David refers to another case observed by M. Denis, in which the tumors presented were analogous to those found in the patient of Petit. The patient also carried a double hydrocele.

The tumor observed by Petters (Case No. 54, "New Orleans Med. and Surg. Jour.") in the right inguinal regoin of his patient, equaled in size a small apple and remsembled a hernia. It "felt like a conglomeration of ascarides—like rebounding cords, which upon pressure with the finger became softer and more flaccid. Petters regarded this anomaly as a "venous plexus," but it consisted of the "glands of the right inguinal region transformed into cysts, of small walnut size, filled with wine-yellow fluid. From the inner wall of these cysts, trabecular projections extended into the cavity, and it was possible to enter

* Petit, Gaz. des Hôpitaux, 1864, p. 482.

† Aime-David, Inaug. Thesis, Paris, 1865.

two dilated lymph vessels, of crow-quill size, which connected the cysts with one another, so that a dilated vas efferens and afferens could be seen in each cyst. Upon puncture yellowish fluid spouted from these cysts in a jet of several inches. Lymph vessels and cysts together formed a conglomeration which it was difficult to unravel. The lymph vessels in the vicinity and the thoracic duct showed considerable dilatation." This case was complicated with stenosis of both auriculo-ventricular orifices, enlargement of the heart, œdema, ascites and cirrhosis, and it does not seem possible to have correctly diagnosed the true nature of the inguinal tumor, which was only recognized after paracentesis.

In Amussat's case death speedily ensued, preceded by violent symptoms, which developed suddenly after a fatiguing walk; in Nélaton's, death followed, in a few days, an operation; and in Trélat's, it followed an operation for fistula in ano, unaccompanied with any trace of redness or inflammation about the wound, without erysipelas or any appearance of angioleucitis. In these cases, as in also those of Fetzer and Petit, the tumors had been mistaken for hernial sacs. It thus becomes important to differentiate them from herniæ. Gjorgjevic asserts that lymphangiectatic tumors may be confounded with reducible and irreducible tumors. Among the latter may be classed cold abscesses, cysts, and lipomata, which develop very slowly, like lymphangiectatic tumors, but from which they differ by their reducibleness, transparency, and indistinct feeling of fluctuation, resembling that of lipomata, but quite distinct from that of tumors containing fluid. Softness is a characteristic of lipomata, but the latter are fixed. They may be compressed, but not reduced. Lipomata are rarely developed symmetrically (Trélat), whilst the inguinal glands may be affected upon both sides. Of the reducible tumors they are most frequently mistaken for herniæ. Both, says Gjorgjevic, develop slowly; neither change the appearance and character of the covering integument; both increase in size during exercise and continued maintenance of the erect posture, and both usually recede in the horizontal posture. In the latter position, however, the hernial tumors do not recede unaided, but the glandular tumors do. Amie-David

insists that the existence of a dilatation of the lymphatic vessels of a neighboring part would be presumptive of the character of the tumor. Drinkard invites attention to the differing compactness and consistency of the parts of the tumor in his case, and to the absence of any impulse on straining or coughing, the invariable size of the tumor, and history of the case, as sufficient to prevent a mistake in diagnosis. But in case 62 the history was suggestive of the presence of hernia, for the tumor in the right groin developed during violent exertion, and in case 60 tumors developed gradually, were reducible at pleasure, and protruded immediately upon removal of the compressing appliances. In the debate which took place before the Surgical Society of Paris, when M. Trélat first presented his patient for examination, M. Verneuil "gave the opinion that the deep and intra-abdominal lymphatic vessels were dilated, and had perhaps been the point of the departure of the disease," which opinion was verified by the autopsy; but M. Trélat, in his report of the case, does not give the reasons which enabled Verneuil to arrive at so accurate a diagnosis. No reference is made in any of the reports of the cases to percussion as a means of diagnosis. But, perhaps, the only conclusive test must be derived from aspiration. The presence of a fluid, presenting the chemical and microscopical characters of lymph, would settle the diagnosis. A lobulated feel, or the sensation of a congeries of twisted cords, unattached and movable under the skin, or the continual presence of a swelling around the truss, as in Trélat's case, which enlarged when in the erect position, should excite a doubt as to the hernial character of the tumor. The case of Fetzer (62) presented concomitant phenomena, which should remove all doubt as to the correctness of a diagnosis.

Case LXV.*—A girl, 16 years old, had, besides a double femoral hernia which had existed since her eighth year, upon her abdomen a ribbon-like stripe, commencing one inch below the navel, to the left of the linea alba, continuing to the left and upwards, and passing between the false ribs and the ileum, proceeding thence, becoming lighter in color and narrower, as far

* Fetzer, Arch. f. Physiologische Heilkunde, 1849, p. 128.

as the vertebral column. Upon this band, anteriorly upon the abdominal walls, one inch below the navel and two lines from the linea alba, was a conglomeration of several, perhaps eighteen, wart-like tumors, from the size of a male to that of a female nipple, and of the same color as the surrounding skin. They were painless, flaccid, could be pressed into the abdominal walls, but rose upon the removal of the pressure. From two of the protuberances a milk-like fluid exuded continually, drop by drop. The flow issuing from a small red spot in the centre of the tumors, was increased by pressure upon any of the unruptured bodies. After standing a short time the fluid separated into a milky, turbid serum, rendered clear by ether, and a brighter, milky, large coägulum, which reddened upon exposure to the air. Fetzer removed with the scissors one of the protuberances, which was formed by a thinned cutis, and immediately from the opening issued in a stream a considerable quantity of the milky fluid, which was followed by great debility, languor, and a feeble pulse. The entire band was thickly studded with minute raised points. Into the opening, artificially made, a probe could be passed to the depth of one inch. Chemical analysis of the fluid by Prof Köstlia, and microscopic examination by Prof. Schlossberger, proved it to be lymph.*

The history of the above case is incomplete, and, consequently, the true nature of the hernial tumors must remain in doubt, but the probability is, they were similar to the masses of dilated lymphatic vessels found in cases 61 and 62. If such was their character the coïncident diseased condition of the lymphatics of the abdominal wall becomes an important aid in determining a correct diagnosis. Not that such a condition is necessary to exclude the existence of true hernia, but that the concurrence of

* The congenital origin of cases 50, 52, and 65 is somewhat doubtful, but the probability of some congenital defect of formation either of the glands or vessels is so strong that I have so classed them. Binet insists that the phenomena in Fetzer's case were due to a congenital lesion of the plexus of origin of the superficial tegumentary vessels. Billroth says congenital occlusion played an important part in producing the disease in Thilesen's case. Carswell (Patho. Anat. Art. Hyper.) expresses the opinion that the dilatation in Amussat's case was a malformation. The case is frequently referred to as Carswell's, but incorrectly.

tumors resembling herniæ and dilatation of the lymphatic vessels of the abdominal parietes would determine the lymphatic nature of the tumors. This view is confirmed by the phenomena presented in the case of disease of the lymphatics of the abdominal integuments, with occasional discharge of large quantities of chylous urine, reported by William Roberts, which, so far as I know, is the only case on record, though not claimed to be congenital, that exhibits an analogous condition of the abdominal walls.

It is perhaps not possible to diagnose such a condition of the lymph vessels as was found in the case of Amussat, yet it is more than probable that the mistaken nature of the inguinal tumors, and the unfortunate application of the hernial truss, set up the inflammatory conditions which proved fatal. The acute symptoms were not unlike those present in the case reported by Graves and Stokes (No. 17, "N. O. Med. and Surg. Jour."), in which the painful swelling in the left iliac fossa, mistaken for fæcal accumulation, proved, on post-mortem examination, to be a mass of devasted lymph glands and dilated lymph vessels, which communicated with the thoracic duct.

Case LXVI.*—W. R., aged forty-five, admitted to Royal Infirmary Sept. 21, 1868. Two years previously he began to suffer from a succession of abscesses; one appeared on the buttock, another on the right breast, a third in the left groin, and a fourth in the right iliac region, two inches from the middle line, and midway between the horizontal level of the umbilicus and the pubis. The last formed opened and refilled several times. After all had healed, he noticed a scab over the site of the fourth, which he removed, and immediately a pale, watery fluid, like gum-water, began to exude, and continued until several pints were lost. At this time he observed a number of transparent vesicles, not larger than pins' heads, scattered over the abdomen, occupying the hypogastric region from the umbilicus to the pubis, extending considerably more to the right than to the left of the middle line, thickest near the centre of the hypogastrium, and smaller and more sparse towards the confines of the affected region. A cluster of large vesicles is situated near

* Roberts, Manchester Med. and Surg. Repts., vol. i, p. 104, 1870.

the umbilicus, and another large cluster is near the upper right and external limit, as shown in figure 36.

Some of the groups contain three or four, others eight or ten, vesicles, closely aggregated together. Some are so small that they are just visible. Most of them are hemispherical, but some are oblong or irregular, as if two or more had cälesced. In the smaller vesicles the membrane is transparent, without a trace of organization, their opaque white contents shining through them like drops of rich milk; but a few of the largest

FIGURE 36.

are distinctly marked by meandering lines of delicate blood vessels, giving them a faint rose color. They varied in color and fullness—the whiter the more distended, and when pale they were flaccid. The color was also affected by the state of the patient's health, and by the digestion and assimilation of food; when feverish they were pale, but when the appetite and sleep returned they became milky and turgid. As his health finally declined, the milky appearance became less marked, and in the last week of his life they became permanently pale and flaccid.

They were paler in the morning before breakfast, after the prolonged fast of the night. Soon after breakfast they began to grow fuller and whiter, which increased through the day and attained its maximum about eight hours after dinner. The discharge followed the same rule. When a vesicle was gently pressed it immediately emptied its contents, escaping into deeper parts, but returning as soon as the pressure was removed. They did not communicate with each other, but after a copious discharge all became empty.

The skin over the affected area was thickened, soft, and of a dull red color. The dull red area extended beyond the limits of the vesicles. Around the larger vesicles and groups of vesicles, the skin was raised into soft, nipple-like elevations, and was spongy.

The discharge, which sometimes was equivalent to eight ounces per hour, was always, whether milky or opalescent, essentially the same. After standing it separated into a clot and serum; coägulated with heat and nitric acid. When shaken with an equal bulk of ether the white appearance disappeared and it became transparent like blood serum. It was always alkaline, and contained fibrin, albumen, and fat. The varying degree of milkiness was due to the varying quantity of fat. Under the microscope myriads of fine fat molecules were seen sometimes mixed with larger oil globules; in addition to these, pale corpuscles, identical in structure with white blood and chyle corpuscles, were always present, but not in large numbers.

The condition of the urine was carefully noted during the progress of the case. It varied in quantity from 13 to 40 ounces per day, was most abundant when there was no discharge from the vesicles. Its specific gravity varied from 1025 to 1032. On several occasions the urine was chylous, and on microscopic and chemical examination, excepting the ordinary constituents of urine, presented all the characters of the milky discharge.

This condition continued for several years, without any very marked effect upon his general health until pulmonary phthisis set in, which speedily terminated in death.

Autopsy, twenty-one hours after death. Both lungs were studded with gray granulations, intermixed with larger masses

of gray and yellow tubercles, some of which were softened. Two small vomicæ were found in the left apex and one in the right. Tuberculous ulcers were found in the small and large intestines. The bronchial and mesenteric glands were enlarged. The liver weighed sixty-four ounces, and the spleen nine ounces; both organs healthy. The kidneys and bladder were healthy. The integument of the hypogastrium was much thickened and spongy, contrasting strongly with the emaciated skin over the thorax. The lining membrane of the bladder appeared smooth, glistening, and healthy. Nothing abnormal about the thoracic duct or lymphatic vessels or glands could be detected.

Examination of a portion of the diseased skin. A vertical section exhibited disease of the cutis vera and the subcutaneous tissue. The tendinous, muscular, and peritoneal strata of the abdominal wall were normal. The skin was immensely thickened, and formed with the subcutaneous tissue a pad, varying from a half to an inch in thickness. When fresh, the cut surface had a pale rose and somewhat fleshy or glandular appearance. It was traversed by short ducts or lacunæ, varying from the width of a crow's quill to that of a hair. On microscopic examination the lacunæ could be seen to communicate freely with each other by small orifices. The vesicles constituted the surface boundaries of the superficial lacunæ. The lining membrane of the vesicles and of the lacunæ was smooth, glistening, and lined with spherical nucleated cells.—*American Journal of Obstetrics.*

CLINICAL RECORDS.

"Ex principiis, nascitur probabilitas: ex factis, vero veritas."

ART. I.—*Operation for Bronchocele—Death from Ether.* By H. V. PASSAGE, M. D., A. M., Peru, Indiana.

Hippocrates has said: "Little geniuses, conscious to themselves that they have nothing to spare, can not bear the least diminution of their prerogative, nor suffer themselves to depart from any opinion which they have embraced, how false and

pernicious soever that opinion may be; while the man of real ability is always ready to make a frank acknowledgment of his errors, especially in a profession where it is of importance to posterity to read the truth."

Casper Moore, a native of Germany, aged fifty-six years, has had an enlargement of the thyroid gland ever since his boyhood. Of late years it has become troublesome, and for the last ten months has been obstructing respiration to such a degree that he has been unable to perform any labor. On the 11th of September I was called to see Mr. Moore by a committee of the German Aid Society of this city, and in the presence of the committee and the family informed Mr. Moore of the great danger of the operation, and left him to decide, upon consultation with his friends, what course he would pursue. It was evident to all that he was sinking fast, and that left to nature he must die in a few days. Therefore he decided to have the operation performed, and take whatever chance it gave of recovery. On the third day after the first visit the operation was commenced. Ether was administered by Dr. Floyd, and Drs. Moorehead and Quick assisted in the operation. The patient being placed in the ordinary position for ligation of the carotid, a single straight incision was made over the entire prominence of the tumor through the skin, the strong membranous fascia being rased and torn with the fingers and strong forceps the naked substance of the tumor was laid bare.

The patient now began to show signs of suffocation, and artificial respiration was immediately commenced. He at first seemed to rally, but soon relapsed into a lethargic condition, from which all efforts to arouse him were fruitless. He remained in this lethargic condition for about ten minutes before life became extinct. Upon removing the tumor, it was ascertained that absorption of the tracheal cartilages had taken place, and the tumor protruded into the trachea, which caused the extreme suffering from continual smothering. I had supposed that a firm connection had been formed between the tumor and the œsophagus, which explained the difficult breathing; but in this I was mistaken, as it was evident that the troublesome breathing came from the protrusion of the tumor into the

trachea. It has been the custom with me to use the knife as little as possible in all operations likely to be attended with loss of much blood. Removal of an enlarged thyroid gland is known to be one of the bloodiest operations in surgery; therefore I tear the strong fascia in preference to a cutting incision.

Nearly all works on surgery discountenance the operation for extirpation of a bronchocele. Gross asks the question: "Can a thyroid gland, when in a state of enlargement, be removed with a reasonable hope of saving the patient? Experience emphatically answers no." He then goes on to confess that the operation has proved successful under the most unfavorable circumstances.

Erichsen speaks very disparagingly of the operation, but admits that it can be succesfully performed occasionally.

Sir William Fergusson says the operation is countenanced by but few leading surgeons.

Malgaigne says the operation should be performed only when the tumor, by its size, renders suffocation imminent, or by its nature menaces the life of the patient.

Valentine Mott, the "Nestor" of American Surgery, preferred the operation of ligaturing to extirpation. His proceeding can be found in Mott's edition of "Velpeau's Surgery."

Dupuytren removed a large bronchocele that caused dangerous pressure upon the trachea; the whole gland was taken away, and the four thyroid arteries and many veins secured. Only a small amount of blood was lost. The woman, however, died soon after the operation, with pale face, hurried respiration, cold skin, and sickness of stomach, which, Dupuytren thought, was an indication that some important nerve had been injured.

The elder Monroe, Mr. Gunning, of St. George's Hospital, and Quadri, of Naples, all tried the seton as a substitute for extirpation, but with very poor success.

Mr. James, of Exeter, claims to have been successful in the treatment of one case by seton.

Walther, of Landshut, and Mr. Coates of Salisbury, have both succeeded in partially curing a bronchocele by ligation of the superior thyroid arteries, but Sir William Blizard lost his patient from gangrene after the same operation.

Mr. Holme's, of St. George's Hospital, operated on a woman

at sixty-five years of age. She died in a short time after the operation. ("Amer. Jour. Med. Sciences," vol. lxv.)

Mr. Durham ("Brit. Med. Jour.," March 15, 1873,) removed a cystic bronchocele from a woman thirty-six years of age. The tumor was caused by violence, and was about the size of an orange. The patient made a good recovery.

Morell McKenzie reported to the Clinical Society of London (April, 1874,) sixty-eight cases of cystic goitre, and nineteen of the fibro-cystic variety. The cystic cases were treated by injections of perchloride of iron, and the fibro-cystic were subjected to the same treatment, with the addition of subcutaneous injections of iodine. Quite a large number of these cases got well, but it seems they were very harmless tumors, and not likely to give the patients trouble if left to nature. The serious cases were not benefited by the treatment. ("British Med. Journal," May, 1874.)

Sir Duncan Gibb contributes to the "Lond. Lancet" (January, 1875,) an account of two operations, in which he was successful by dividing the isthmus. Mr. Lennox Brown ("British Medical Journal," August, 1876,) claims to have cured six cases by the use of the seton. Dr. Nelson, of Canada, has performed the operation of extirpation successfully in one case ("American Journal of Medical Sciences," April, 1876). The most successful operator for extirpation of the enlarged thyroid is Warren Green, of Maine. He has performed the operation three times with success. The cases are reported in the "American Journal of Medical Sciences" for January, 1871, and the report contains the best advice and the best directions for the operation within my knowledge.

In conclusion, I would say that whenever it appears that extirpation is the only thing that gives a chance of recovery, the operation should be performed, no matter how remote the chance of success; but no one should attempt the operation unless he has a good knowledge of the science of surgery, and has had considerable experience with the scalpel on the living subject. It is conceded by all surgeons that extirpation ought not to be thought of except as a necessity to save life.

As the danger to life from bronchocele is mainly from suffo-

cation, it would follow as an evident conclusion that there would be an increased danger in the use of anæsthetics; therefore the operation ought to be performed without their use. Had I prevailed on my patient to bear the pain, I am confident he would have lived through the operation, and perhaps made a good recovery. True, the effect of the operation (if it had been successful) would have been that of tracheotomy in addition to the operation for bronchocele, for the protrusion of the tumor into the trachea would necessarily leave an opening into the trachea after the removal of the tumor. Believing that medical men should report a failure as promptly as a success, I submit this short report. A tolerably full knowledge of this subject can be obtained from the references given in this article.

PROCEEDINGS OF SOCIETIES.

"Etsi non prosunt singula, juncta juvant."

New York Obstetrical Society.

Amenorrhœa from Sloughing away of the Uterine Mucous Membrane—Removal of both Ovaries in ten Operations, etc.—Dr. Robert Watts stated that he had observed a curious phenomenon in the case of inversion of the uterus which he had lately reported to the Society. Two months after the operation the patient had presented herself for examination, stating that she had not yet menstruated at all, and that her sexual appetite, which before the operation had been wanting, had developed of late, and had steadily increased, until now it was nearly intolerable. An examination showed the uterus in place, but small; the sound passing in only two inches.

Dr. Mann said that the non-recurrence of the menstruation could be accounted for by the sloughing away and consequent absence of the lining membrane of the uterus. The investigations of Kundrat, Engelman, and more lately those of Leopold, have shown that the mucous membrane is necessary for the

performance of this function. In this way also could be explained certain cases of premature occurrence of the menopause following severe diseases. In such cases it will generally be found that menstruation occurred during the height of the disease, and the naturally slight exfoliation of the membrane was increased by the general degenerative tendencies of the disease, so that the whole membrane was lost, and on the recovery of the woman menstruation was impossible, although ovulation might go on and the sexual appetite remain.

Dr. Ward believed the decidua was thrown off at each period.

Dr. Mann answered that this idea was based on the observations of Williams, of London. But all Williams' observations were made on women who had died of severe diseases, typhus and the like, and the loss of the membrane in these cases was just what would be expected under the circumstances. In Leopold's cases, in all women killed by accident during menstruation and while in good health, the membrane was found to be nearly intact, and the menstrual flow to come from its surface.

Dr. Watts asked how ovulation would go on after the occurrence of the peritonitis. If the tubes were closed, what became of the ova, and why did not the rupture of the follicle induce inflammation?

Dr. Noeggerath said that in this case the tubes were undoubtedly closed, so that no ova could pass through them. But there was no reason why the discharge of an ovum should excite peritonitis. The ovum is so very minute that it is not likely to irritate. Peritonitis might be expected to follow ovulation only when the ovary was diseased, and a discharge of blood takes place with the escape of the ovum. He agreed that in this case the destruction of the uterine decidua was cause sufficient for the amenorrhœa. The impression is certainly gaining ground that the ovaries have very little to do with menstruation. Mayerhofer and others have collected a large number of cases where menstruation persisted after the removal of both ovaries. Dr. Watts thought the cessation of menstruation was due to the destruction of the ovaries by peritonitis. But we often see patients conceiving after recovery from peritonitis. Even if the superficial layers are destroyed, the function of the

ovary may be restored, as the ova come from the deep layers towards the surface. This case would not go far as an argument in favor of the ovarian theory of menstruation.

Dr. Thomas mentioned that he had removed both ovaries in ten cases. Two died; the other eight report as follows:

1. E. W., three years after operation, reports "has never seen any symptoms of menstruation;" is married.

2. E. B. P., two and a half years after operation, has never menstruated or had any symptoms of a disposition that way.

3. M. B. No menstruation.

4. I. E. B. Operation November 20, 1873. December, 1873, and January, 1874, had flow at usual time and lasting usual number of days. February and March, 1874, no flow; April and May again regular flow; since then no report.

5. C. G. No menstruation or symptoms of any.

6. Mrs. S. No menstruation.

7. Miss G., eleven weeks after operation. No menstruation or symptoms of any.

8. Operated in November last; no menstruation to date.

Dr. Thomas said he had repeatedly diagnosed double ovarian tumor from the absence of menstruation, and the operation had shown the correctness of his opinion. He felt that the future would show that menstruation does depend on the function of the ovary.

Dr. Noeggerath said that one case of menstruation persisting after the ovaries had been removed would prove the lack of dependence of menstruation on the ovaries, and many such cases had been collected.

Dr. Mundé reported the following:

Case of Cyst of the Vagina.—Mrs. B. McD., thirty-six years of age, mother of eight children, consulted me March 15th, 1877. She said that her three last children had presented feet foremost, and been delivered dead by the physician, owing to some obstruction, and that she had come to have it attended to in time, feeling herself again about two months pregnant. The last child was born seven months previously. Inspection revealed a tumor of the size of a small orange, projecting between the labia, which, on introducing the finger, was seen to

spring from the anterior wall, and had the appearance of an ordinary cystocele. On endeavoring to replace the tumor, which readily fluctuated, it was found, however, that it could only be very slightly reduced, differing therein from a prolapse of the anterior vaginal wall, and became tense when the attempt was made forcibly. A sound introduced into the bladder conclusively showed that the tumor or cyst had no connection with that organ. The attachment of the cyst to the vaginal wall was about two and one-half inches in extent upward. The diagnosis of cyst of the anterior wall of the vagina was thus easily made. The patient said that during the non-pregnant condition, the tumor was scarcely apparent, but that as pregnancy advanced it gradually increased in size, until at term it completely obstructed the entrance to the canal, and prevented the birth of the child, rendering puncture of the cyst necessary before the latter could be extracted, an operation which, however, did not produce a cure. In order to avoid the repetition of this contingency, and secure permanent relief, I thought it best, in spite of her pregnancy, to operate, and chose the method of excision of the whole cyst, in preference to its injection with tr. iodine, which I feared would be more likely to induce acute inflammation and abortion than the simple union by first intention of a clean wound.

March 17th, the patient being under ether, and the cyst being pressed down into introitus vaginæ, so as to render its surface tense, I made a longitudinal incision about two inches in length, and attempted to separate the cyst from its attachments and enucleate it, working with knife-handle, director, and scissors, as is customary in the extirpation of wens. But I soon found that the union between the cyst-wall and the submucus cellular tissue was so firm, and the latter so sparse in amount, as to render my purpose impracticable. While attempting to force the director a short distance between the cyst-wall and mucous membrane, the thin wall broke and the clear, glutinous contents of the cyst were discharged. A complete extirpation of the cyst was now possible only by slow and tedious dissection, and I therefore preferred to excise a portion of the anterior wall large enough to admit two fingers into the cyst, and to paint

it out with Churchill's tincture of iodine, and apply a cotton tampon. Cold compresses were applied, and in the course of a few days the cyst began to suppurate, and gradually to shrivel, until in a couple of weeks it had entirely closed, without any interruption of the gestation having taken place. The patient has not presented herself since; therefore I conclude that the cyst has not refilled.

The number of cysts of the vagina reported in literature is by no means so great that the publication of a new case may be considered superfluous. Up to the appearance in 1871 ("Arch. für Gynäkol." Vol. II) of a paper on this subject by Winckel, of Dresden, in which the first full account of the literature, etiology, pathology, and treatment of these growths was given, only fifty cases of true vaginal cyst had been reported, including four related by Winckel in that paper. Since then only two papers have appeared, one by Kaltenbach, of Freiburg ("Arch. f. Gyn.," V., 1873), chiefly the report of a case, and the other by von Preuschen (Centralbl., 40, 1874), who found glands in the vagina, and attributed the cysts to the occlusion and dilatation of these glands. One case has also been reported ("Am. Jour. Obst.," Volume IX, 1876) by the late Dr. D. Brainard Hunt, of this city. Doubtless other cases have been observed and reported, but have escaped my notice in the superficial review I have been able to give of the matter.

T. Gaillard Thomas does not mention the disease at all in the latest edition of his book, and Schroeder devotes but two pages to its very imperfect description. In view of this scarcity of literature, and the comparative rarity of the affection, it may not seem inappropriate to refer briefly to the conclusions arrived at by Winckel. He found that the cysts generally occur singly (in 82 per cent.), more rarely two (12 per cent.), and still less frequently three cysts (4 per cent.) are found at a time. Kiwisch found five in one case. As a rule, the cysts are located on the anterior (19 cases) or posterior (14) wall, more rarely laterally (5). On the anterior wall, the lower third and junction of middle and upper third are the favorite seats; on the posterior wall the lower and middle thirds. In two-thirds of the cases the cysts occurred in the lower half of the vagina. The size of

the cysts varied from that of a pea or nut (25.5 per cent.) to that of a hen's egg, or pear, or larger (34.09 per cent.), the larger portion being of medium size, pigeon's egg (40.4 per cent.). The contents of the cysts varied greatly, being reddish, brown, green, slimy, glutinous, albuminous, but generally a clear yellow color, and serous consistency. An analysis shows albumen, salts and water, epithelia, granulated cells, fat-globules, and in those with colored contents, pigment and blood corpuscles. There are four varieties of vaginal cysts, differing in origin and constitution of their envelopes.

1. Simple follicular cysts, superficially located in the mucous membrane, with a thin envelop, containing only fibro-elastic tissue and lined by pavement epithelium. 2. Cysts caused by a dilatation of lobulated glands (found by Henle in exceptional instances in the upper portion of the vagina and the cervix), with thin walls, no endothelium, and always small in size. 3. Cysts whose walls consist of the mucous membrane and at least a portion of the fibro-muscular coat of the vagina; these cysts have no special capsule, but are found merely by a separation of the strata of the vaginal wall by an effusion, and occur chiefly in the lower third of the canal (of this class, I believe, was the cyst in my case, and it is therefore not surprising that its enucleation did not succeed). 4. Cysts in the perivaginal cellular tissue, with separate walls and varied contents (cheesy, dermoid), which grow down into the perivaginal space, and push the whole wall of that canal before them. Briefly, these four varieties may be divided into three groups: *a*, mucous cysts, arising from closed or open follicles; *b*, interstitial cysts, located in the submucous or fibro-muscular layer; and *c*, the subserous, situated above under the peritoneum, below between rectum and vagina. Of the fifty cases, the majority come under class *b*, interstitial, about 66 per cent. being found below the middle of the vaginal canal, a portion where even those authors who claim positively to have found glands in the vaginal mucosa admit their absence. The etiology of these cysts varies. That of the follicular cyst is probably to be sought in chronic catarrh and inflammation of the vaginal mucous membrane, and in the physiological hyperæmia occurring during pregnancy. The

interstitial cysts probably arise in consequence of pressure, contusions and extravasations during parturition. Still, of the fifty cases collated only eight were parous women, and two were undoubted virgins, one being a new-born child. The rarity of the cysts in the lateral portions of the vagina certainly does not speak in favor of Veit's opinion, that they originate in a persistence of the Wolffian bodies; or possibly the lower ends of Müller's ducts may remain patent and occasionally be the starting point of vaginal cysts. Strains and local injuries irrespective of childbirth are recorded as causative agents in several cases, and Verneuil believes in the occasional formation of hursæ mucosæ in the recto-vaginal septum.

The growth of the cysts is very slow, and the symptoms occasioned by them are referable chiefly to their size and protrusion; interfering with walking, coïtion, and micturition, and with delivery (as in my case); at times they are accompanied by a very offensive leucorrhœa. The diagnosis is simple, and only gross negligence could lead to a vaginal cyst being mistaken for a prolapsus uteri, a cystocele or a prolapsed ovarian cyst. In none of the cases reported did spontaneous disappearance of one of the larger cysts occur; the smaller follicular cysts occasionally collapsed without treatment, but the larger ones generally returned after simple incision. To secure a certain cure it is usually advisable to excise a piece of the wall and cauterize the cavity with nitrate of silver or tincture iodine. In three cases out of fifty it is stated that the whole cyst was excised; in eleven only a portion with cauterization; in six simple incision; in five puncture and injection of tincture iodine. All of these cases were cured. In four cases simple puncture with a trocar was made, and the cysts refilled. In the other cases various plans were adopted with variable results. These single and isolated cysts of the vagina should not be confounded with a diffuse cystic degeneration of the vaginal mucosa during pregnancy only, first claimed to have been described by Winckel (l. c.), and termed by him *colpohyperplasia cystica*, which consists in the formation in the latter half of pregnancy of innumerable small cysts, as many as 15-20 to the square inch, of the size of millet seeds or peas, and confined to the middle and

upper portion of the vagina. These cysts contain a clear serous fluid, and not unfrequently air. They appear to be partly retention cysts of follicles, but principally cavities formed by the agglutination of the numerous, during pregnancy physiologically hyperplastic, vaginal rugæ, and the accumulation of secretion in these cavities. The frequently profuse leucorrhœa during pregnancy seems to be the active agent in their production. In the three cases seen by W., they all disappeared after labor, being probably crushed and effaced during the passage of the child."*

Dr. Ward remarked that Dr. Thomas had been able to enucleate a similar cyst, but previously the cyst had been ruptured and suppuration had taken place.—*The American Journal of Obstetrics and Diseases of Women and Children.*

ORIGINAL CORRESPONDENCE.

"Sit mihi Fas scribere audita."

SEBASTOPOL, SONOMA CO., CAL., September, 1877.

Prof. E. S. Gaillard:

Dear Doctor,—A few years ago, whilst living at Howland's Flat, in Sierra county, California, I was solicited to visit Mrs. Thomas Smith, in Morristown, in consultation with Dr. Jenny (who, by the way, is one of our best physicians). She had been having labor pains two days and nights. Dr. Jenny had prescribed different remedies, such as ergot, laudanum, etc., to cause expulsive pains, but his remedies were of no use; consequently he sent a messenger after me, and one to his office in St. Louis after his instruments. When I arrived, the Doctor

* An additional paper by von Preuschen has appeared since the reporting of this case (Virchow's Archiv, lxx, 1,) in which he confirms his previous statements, adding that the vaginal glands resemble the sebaceous glands of the vulva; further, that a persistence of Gardner's ducts is frequent in other mammalia; and therefore not unlikely in the human female as an origin of vaginal cysts. It should be noted, however, that since P.'s first paper, no investigator has been able to find the glands in the vagina described by him, and that their presence, therefore, still demands confirmation.

gave me a history of the case. She was an Irish lady, thirty-five years old; had never had any children. She was over the average size, and had a great deal of physical strength. She was suffering with a great deal of pain, but had fever, and her system was tuned up to the highest pitch. There was so much rigidity about the neck of the uterus that there was no expulsion. Dr. Jenny was under the impression that we would have to use instruments, but was willing to pursue any course that I might suggest in the case. As he had not slept any for two days and nights, I advised him to lie down and sleep a few hours, and I would take charge of the case. He did so, and I commenced giving her small doses of tartar emetic and ipecac, just enough to cause nausea, but not enough to cause vomiting. After pursuing this course about one hour her system, which had been tuned up to the highest pitch, became relaxed, and her pains gradually became expulsive, and in one hour from that time the child was born, which weighed twelve pounds. I have had several similar cases, and invariably use tartar emetic and ipecac.

Nature is full of wisdom. The theories that we advocated thirty years ago in medical literature have passed away. Each generation has furnished its idol of genius. The lancet, which was so extensively used, is now discarded. We no longer use purgative medicine to excess. Our system of practice has been improved. Opium is an old remedy, and is, in my opinion, used to excess. If the devil is in the system and we wish to retain him there, we can do so by the use of opium. I will admit that opium is a good remedy when it is indicated to relieve pain, but it is advisable, when we can do so, to remove the cause of the pain and not use opium. I, like a great many of my profession, have been disposed to keep pace with the age of progress in therapeutics; consequently I invested $5 for a little "squirt-gun" called a "hypodermic syringe," and shot it several times under the skin over the deltoid muscles, but it now, like my lancet, is laid on the shelf. Some use hydrate chloral to excess, and of late some have salicylic acid on the brain for rheumatism. I gave it a fair trial a short time ago, and caused my patient to be very delirious, and he derived no

benefit from the remedy; but if he had continued to have taken it a few days longer, the undertaker would have had a job. The science of medicine is not a perfect science, and never can be, because we have no perfect knowledge of the laws of nature. We know that sugar is sweet and vinegar is sour; we know that castor oil will purge and ipecac will cause nausea and vomiting, but our knowledge about the laws of nature in carrying out her plans is limited.

Yours respectfully,

B. B. ALLEN, M. D.

HOT SPRINGS, ARK., October 23, 1877.

Dr. E. S. Gaillard:

Dear Sir,—Tents have grown into general use in the treatment of uterine diseases, but I have often found myself embarrassed for want of a suitable assistant. The general rule, indeed the universal practice, so far as I am informed, is to use a speculum in the introduction of a tent into the uterine canal. The Sims speculum is generally used, and if a physician is not present to assist you, it is quite difficult to get any one to hold the instrument in proper position till the tent is introduced. These difficulties led me to make an effort to introduce a tent without the use of the speculum, and, to my great gratification, I accomplished it with ease. For the past eight years I have made it a rule to introduce tents into the uterine canal without the aid of a speculum, and it frees me from the embarrassments above mentioned; and I introduce the tent with as much ease and facility as I could possibly do with a speculum.

With a hope of relieving some of my professional brethren of the difficulties environing this important operation, I will be pardoned for briefly rehearsing the simple process of introducing a tent into the uterine canal without the use of the speculum.

Place the patient on her back, with the feet drawn up; take a firm hold on the tent with a tent forceps, using the left hand, introduce the index finger of the right till it reaches the os uteri, then pass the tent along the finger until it reaches its destination, when it can readily be guided into the os tincæ, when a little careful manipulation will carry it into the uterine

canal. Any one at all familiar with the part, and with ordinary skill in manipulation, can introduce a tent in this way.

The sea-tangle tent (laminaria digitata) is the tent I use. The sponge tent is a little more difficult to introduce without a speculum, as the moisture of the parts softens the gum and expands the tent.

Respectfully,

WILLIAM H. BARRY, M. D.

ALEXIS, ILL., October 29, 1877.

Dr. E. S. Gaillard:

Dear Sir,—On opening the present number of the Journal of October 27, I discovered a short article from Dr. Gregory, of Greensboro, N. C., asking for information in the treatment of diphtheria. Permit me, through your pages, to ask him to try salt and sugar in combination, whatever else his treatment may be. My treatment in not only this disease, but in scarlatina, a diseased condition very nearly allied to the former, especially in so far as the condition of the throat is concerned, has for the past two years been calomel to commence the treatment with, and common salt and crushed sugar in about the following formula, first, last, and all through the course of the disease: Salt, two teaspoonsful; sugar, four to six teaspoonsful in two-thirds of a teacupful of soft hot water; a teaspoonful every half hour or hour swallowed in whole or in part, as the case may be, so as to keep the parts constantly bathed with the solution, and introduce the chlorine by this means into the blood. Salt may be administered in this way to any child without difficulty, and almost *ad libitum*. This treatment in my hands has seemed to succeed well, and does away with all fruitless attempts at mopping the throat with the probang.

Respectfully yours,

J. F. MCCLANAHAN, M. D.

CHEMISTRY AND PHARMACY.

"Diruit, ædificat, mutat."—Hor.

Note.—This department of the Journal is now in charge of Dr. C. W. Null, Lecturer on Materia Medica and the Physiological Action of Medicines in the Louisville Medical College. It will be conducted with great care, and will be of increased interest and value to the Professional Public.—Ed.

Santonin.—Mr. E. Marlet Boddy, in an article in the "Times and Gazette," says there is no doubt that santonin is, for many reasons, by far the most efficient anthelmintic that can be administered to children, and that its combination with calomel he has found to be most advantageous in every respect. Santonin, like every other therapeutic agent, requires care in its administration; and if it be allowed to remain in the system it acts deleteriously, like certain cumulative medicines. This should of course be avoided, if possible; and the only way to avoid it, as regards santonin, is to combine it with some purgative, such as calomel, which carries it off. If santonin is allowed to remain in the system it is transformed in some unknown way into a substance known as xanthopsin. This substance is excreted by the kidneys, giving the urine a very bright yellow color, somewhat like the urine passed in jaundice. Xanthopsin in the urine is readily detected by adding caustic alkalies, which redden it. He thinks there is no doubt that it is this xanthopsin which gives rise to those dangerous symptoms that have been so largely dilated upon of late, and which many attribute to the presence of santonin, ignoring the presence of xanthopsin, and this mischievous action Mr. Boddy has found from experience to be entirely counteracted, or rather prevented, by the administration of calomel at the same time. He says: "I generally administer santonin combined with calomel, or I give it preceded and followed by the drug; but one plan is as good as the other. The result of so giving this drug as anthelmintic in either of the two modes has been most happy, and I have very seldom found it necessary to repeat the dose, for such treatment is thorough and precludes the necessity of repetition."

I myself have never had a case where convulsions or retention of urine have originated from santonin; in fact, I have never seen any untoward symptoms resulting from it in any way

whatever which I attribute to my combining it with calomel or preceding or following it up with that purgative.

My experience has convinced me that nothing of a deleterious tendency can possibly accrue from santonin if it is properly combined with calomel; for by so doing we do not allow sufficient time to elapse for the xanthopsin to act on the system, for when the santonin has done its work the calomel removes it. The latter drug is a more searching purgative than castor oil; being likewise a cholagogue, it causes a greater secretion of bile, which is the natural purgative.

Giving the santonin in one of the two modes mentioned will entirely prevent all dangerous symptoms arising; there will be no convulsions and no retention of urine; nor will the urine be like that passed in jaundice, for this one simple reason; the santonin, when it has done its work, is eliminated from the system by the calomel, and consequently the poisonous xanthopsin has not sufficient time to form. Perhaps this substance is the cause of patients seeing objects as either yellow or green after taking large doses of santonin.

Nitrate of Furfurine.—This substance is said to have been discovered by the late Professor Fownes. The symbol of its composition is thus expressed: $C_{30}\ H_{12}\ N_2\ O_6$. It is soluble in hot and slightly so in cold water. When wheat bran is acted upon by dilute sulphuric acid in a chamber through which a current of steam is passed, a volatile, oily body is produced known as furfural. Furfural in contact with ammonia in solution is converted into furfuramide. Furfuramide acted on by caustic potash is slowly dissolved; and the solution deposits small needle-like crystals. These crystals are furfurine, which is a powerful organic base, and forms, with acids, beautiful crystalizable salts.

The medical properties of this substance are not yet satisfactorily made out. It has been used in the form of a nitrate in two to five-grain doses for neuralgia, and is supposed to have tonic properties.—*Henry Brown in British Medical Journal.*

Adolphe Wahltuch, M. D., reports in the "British Medical Journal" seven cases of nervous asthma treated with inhala-

tions of arsenic, and galvanization of the pneumogastric nerves. Five of them were permanently cured and two materially benefited. The following is the mode of treatment: Arseniate of soda, one-sixth to one-half gr.; arseniate potash, ℥ss to ℥j.

Inhalations of these preparations were used successively once or twice daily. Galvanization of the pneumogastrics was effected by wetting a sponge with salt water and connecting it with the positive pole of a continuous current and then placing it in the submaxillary fossa, about the inner edge of the sterno-cleido-mastoid muscle. Another sponge is connected with the negative pole and placed close to the trachea about the sterno-clavicular articulation. Both pneumogastrics were galvanized separately within from two to five minutes.

Poisoning with Tobacco.—A boy aged three or four years was playing with other children, blowing soap-bubbles. The father of the child gave him a pipe-stem which had been lying on the shelf for more than a year. The child was quite well at the time; but an hour after using the pipe-stem he became sick and drowsy. A medical man was called in, and found the child laboring under the usual symptoms of narcotic poisoning. He was in a comatose state; pupils slightly dilated. He could be aroused to answer questions; but showed no signs of rallying. He died on the fourth day after using the pipe. The cause of death must have been the nicotine, a poison of which children are highly susceptible.—*Brit. Med. Jour.*

Diuretic Action of Water Containing Carbonic Acid.—In the section of Anatomy and Physiology at the meeting of German Naturalists and Physicians in 1876, Professor Guincke spoke of the diuretic aciton of water containing carbonic acid. Experiments with water containing carbonic acid and that free from it, carried on in healthy or nearly healthy individuals, showed that the secretion of urine in the next three hours after drinking the carbonated water was richer (7 to 21 per cent. of the entire amount). The probable cause of the great diuresis was an accelerated absorption brought about by the carbonic acid. Other experiments, in which the individuals took no drink on waking in the morning, showed that the urine secreted

in the morning hours is clearer and of less specific gravity than the night urine which was passed on getting up. Also the average amount secreted in an hour was usually greater in the morning hours than in the night. These facts show that during sleep the secretion of urine is relatively small, and that after waking it is increased.—*Abst. Clinic.*

Hydrobromic Ether as an Anæsthetic.—Rabateau, in a memoir read before the Academie des Sciences, states that he has studied the physiological properties and mode of elimination of hydrobromic ether. He has satisfied himself that this anæsthetic agent, which possesses properties intermediate to those of chloroform, bromiform and ether, is advantageously used to produce surgical anæsthesia. The hydrobromic ether is neither caustic nor irritant. It can be ingested without difficulty and applied without danger not only to the skin, but to the external auditory meatus and to mucous membranes. It is eliminated from the system completely, or almost completely, by the respiratory organs in whatever way it may have been introduced into the system.—*Abst. Lancet.*

Nitrite of Amyl.—Any points of information in reference to this interesting and comparatively new medicinal agent will be read and studied with pleasuse by all. Mr. D. W. Lane thus sums up briefly in the "British Medical Journal" his conclusions, based upon the result of many experiments on its physiological action:

1. Amyl-nitrite, when inhaled in small quantities, produces reddening of the face in man, and of the nose and mouth in kittens. This action is due, according to Brunton, to the dilatation and over-filling of the arterioles.

2. When inhaled by kittens in large quantities, it produces cyanosis of the nose and mouth, along with insensibility. The cyanosis arises from over-distention of the venous system; this being due to the engorged arterioles propelling the blood into the veins, while the insensibility is probably caused by over-distention of the venous system and the heart.

3. When inhaled in small quantities it produces recovery from chloroform insensibility by dilating the arterioles of the

brain, and thus removing the cerebral anæmia due to the chloroform.

4. When inhaled in large quantities, instead of producing recovery from chloroform insensibility, it not only retards it, but it may cause death by paralysis and over-distention of the heart, and engorgement of the venous system and the heart.

5. It causes rise of temperature when inhaled in small quantities by the increased amount of blood in the arterioles, causing an increased tissue change in the body.

6. In large doses (inhaled) it produces a fall of temperature. It helps to produce recovery from chloroform also by raising the temperature, which is lowered in chloroform insensibility.

To Remove Silver Stains from Fabrics.—This process is said to be especially successful in removing spots from materials that have been several times washed. First prepare a saturated solution of chloride of copper, dip the stained fabric in the solution, and let it remain several minutes, according to the character of the spots. Then rub them with a crystal of hyposulphite of soda. When neutral chloride of copper is used the color is not changed. This process can be repeated.—*Photographic News.*

Glyricine is the name of a much-lauded rat-poison, made by an apothecary of Culm. It is made by mixing finely-cut squill-root with about half its weight of rye flour and as much fat in a mortar, and passing the whole mass through a sausage mill afterwards to insure a finer state of division. It appears in the form of a confection, and is said to be a deadly poison to all rodent animals.—*New Remedies.*

Hydrochlorate of Pilocarpia, a salt of the alkaloid of jaborandi, has been employed by Dr. Zaubzer, who considers it a very valuable sialagogue and diaphoretic, the latter property being apparently somewhat inferior to that of jaborandi, over which it has the advantage of not producing nausea or emesis, nor of its administration being followed by headache or vertigo. —*Phor. Zeitung.*

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

"Judex damnatur cum nocens absolvitur."

Transactions of the American Gynæcological Society. Vol. I, pp. 387. For the year 1876. Boston: H. O. Houghton & Co., Cambridge. 1876.

The appearance of this the first volume of the American Gynæcological Society will perhaps be hailed with no little pride and gratification by the lovers of scientific research, particularly as the papers have been presented, with four exceptions, by our own (American) physicians. They all are of great value, and show much care and thought in their preparation, and are based on subjects of vital importance, exhibiting and deducing questions of profound interest to the scientists of the present day. The Society held an inaugural meeting in New York on June 3, 1876, when it was duly organized, and held its first annual meeting in the same city September 13, 14 and 15, 1876.

The President, Dr. Fordyce Barker, opened with a most appropriate annual address, in which he says "the status of this Society in the scientific world will be determined by the character and value of the papers published in its Transactions, and by the tone and ability of its discussions. I can not permit myself to doubt that it will soon attain such a position that the title 'Fellow of the American Gynæcological Society' affixed to the name of a writer of a paper on any subject which relates to obstetrics and gynæcology will be so strong a presumptive evidence that such a paper must have value, as to secure perusal from all interested in the topics discussed." He then offers some valuable suggestions as to the character of the papers to be laid before the Society at its annual meetings and the discussions which are to follow.

The first paper presented at this meeting was by Dr. Thomas A. Emmet, of New York, on the "Etiology of Uterine Flexures with the Proper Modes of Treatment." This was freely discussed by the members present; Dr. Peaslee opening the discussion, followed by other distinguished gentlemen. The discussion turned mainly on the treatment, which was incision of the

cervix to relieve stenosis, and the attendant suffering due to dysmenorrhœa on account of uterine flexures, and also sterility. There were differences of opinion as to the mode of performing these incisions, or rather as to the extent to which they should be carried; some advocating superficial, others more extensive incisions.

Second Paper—"Cicatrices of the Cervix Uteri and Vagina." By A. J. C. Skene, M. D. This paper, though short, was well presented by the author.

Third Paper—"Extirpation of the Ovaries for the Remedy of otherwise Incurable Diseases;" Normal Ovariotomy. By Robert Battey. Discussion postponed on account of the absence of the author. This is a new surgical operation, having been practiced by the author about four years, performed, as he says, for the cure of obstinate disease caused by the "ovary viciously or abnormally performing its functions." The main object of the operation seems to be "to put an end to ovulation, and thus to determine the menopause whereby, through the intervention of the great nervous revolution which ordinarily accompanies the climacteric, to remove serious sexual disorders." The author has operated ten times. Three of the cases came under the former and seven under the latter indication. That is, if I understand his meaning, three were performed for the cure of obstinate disease produced by functionally abnormal ovaries, and seven to determine the menopause. "Out of the ten operations three had one ovary removed; of the remaining seven two died; of the five two were so complicated with pelvic deposits of lymph that it could not be asserted that the ovaries were cleanly removed; so of the ten only three could throw any light upon the question of determining the change of life." Thus he says "the number of my cases is as yet entirely too small to throw any important light upon the question." The papers presented in the numerical order in which we have arranged them, from this to the tenth, we will only name with the authors, and pass on to the tenth, viz.:

Fourth Paper—"Central Rupture of the Perineum." By J. M. Duncan, M. D.

Fifth Paper—"Viburnum Prunifolium; its Uses in the Treatment of Diseases of Women." By E. W. Jenks, M. D.

Sixth Paper—"An Illustration of Xenomenia." By T. Parvin, M. D.

Seventh Paper—"The Relations of Pregnancy to General Pathology." By Robert Barnes, M. D.

Eighth Paper—"The Spontaneous and Artificial Destruction and Expulsion of Fibrous Tumors of the Uterus." By W. H. Byford, M. D.

Ninth Paper—"Report of a Case of Abdominal Pregnancy Treated by Laparotomy." By T. G. Thomas, M. D.

All these papers were valuable contributions to the Society, and were ably treated by the several authors.

Tenth Paper—"Pneumatic Self-Replacement in Dislocations of the Gravid and Non-Gravid Uterus." By H. F. Campbell, M. D. This is one of peculiar interest, involving a very important principle, and elucidating a difficult problem in the treatment of uterine displacements, a malady bringing often great perplexity to the practitioner, and great and protracted suffering to the woman. To carry out the principle advanced by the author of this paper, a certain posture is necessary, viz., the *genu-pectoral* or *knee-and-breast position.* In the text certain wood-cuts and diagrams are exhibited, which it would be well for all practitioners to study, as this position is important in the treatment of other accidents and derangements occurring to women, the prolapse of the cord, etc. When the woman is placed in this position for reducing a dislocated womb, "three important conditions are found to be coëxistent: 1st. Reversal of gravity; 2d. Draft of viscera; 3d. External atmospheric pressure." These he notices in detail, and more particularly the last, as without this the others would be unavailing. This he regards as the "indispensable condition of power, the *sine qua non* in the process of replacement." Indeed it is, according to the author, "almost impossible to fail" to reduce a dislocated womb in this position. He uses the finger, but relies upon atmospheric pressure, which he regards as the most important factor in accomplishing the reduction, this position being more favorable for its exertion than any other, as when the finger is introduced air enters with it, and by external pressure greatly facilitates the process. Indeed he says: "In many cases

in this position the dislocated uterus is replaced without the air pressure being considered a part of the intended programme"; the operator intending and supposing the reduction is accomplished solely by his finger. In the discussion following this paper there was considerable variance of opinion.

Eleventh Paper—"Hydrate Chloral in Obstetric Practice." By W. L. Richardson, M. D.

This new and potent drug has indeed been a blessing to suffering woman. I can endorse all the author says in regard to it in obstetric practice. I would decidedly prefer it to chloroform as an anæsthetic in labor. Have never used it in the nausea of early pregnancy, but have seen its good effects in sympathetic vomiting and restlessness of the last stage of protracted labor. At this time, especially when it is necessary to use the forceps, a free dose checks vomiting, quiets the patient, and prepares the way for the operation of instrumental delivery. For after-pains it is a specific. The author combines it with ergot, which is a good combination. Here is the formula:

℞.—Extracti fluidi ergotæ, ℥ii;
Hydratis chlorali, ℥i;
Aquæ menthæ piperitæ, ℥i.
M. S. Two teaspoonfuls every hour if necessary.

Twelfth Paper—"Labor Complicated with Uterine Fibroids and Placenta Previa." By J. R. Chadwick, M. D.

Thirteenth Paper—"Latent Gonorrhœa, with regard to its Influence on Fertility in Women." By E. Noeggerath, M. D.

This is an excellent paper, and the views advanced by the author I think could be sustained, and should be generally received, although in the debate considerable opposition was expressed.

Fourteenth Paper—"On Death from Urinemia in Certain Cases of Malignant Disease of the Uterus." By A. Wiltshire, M. D.

Fifteenth Paper—"Clinical Memoir on some of the Genital Lesions of Child-birth." By William Goodell, M. D.

This is an important subject, particularly what relates to the debated question of primary and secondary operations in lacerations of the perineum, and the use of sutures. In many cases

the author's position is correct; that is, to close the wound immediately and with *sutures*. There are, however, superficial lesions, and certain circumstances connected with certain cases in which the immediate closure of these lacerations would be impracticable, if not impossible, by sutures. I have seen such cases, one in particular, of a delicate, nervous lady reduced to almost the agonies of death by the shock of a protracted labor, and forceps delivery, with a lacerated perineum extending *to* but not *into* the sphincter ani, with a large, highly inflamed hæmorrhoidal tumor protruding from the anus, tightly grasped by the sphincter, the slightest touch of which would almost throw her into convulsions. To have subjected this lady to the pain of introducing sutures would have been *barbarity*. She made a good recovery, both of the laceration and hæmorrhoids, in about seven or eight weeks, and at this time is able to get in and out of her buggy and ride six miles and back to her home. Her infant was delivered by the writer of this review with the forceps two months ago. The laceration was unavoidable, and did not involve the sphincter ani or recto-vaginal septum, and she was not aware of the occurrence until informed by her husband. The treatment used was simply bandaging the limbs together and strict confinement to the horizontal position. From this and similar cases I would infer that sutures are not necessary in all cases, and should be restricted to the more extensive lesions.

Sixteenth Paper—"Hermaphroditism." By Lawson Tait, F. R. C. S.

Seventeenth Paper—"Cases of Cystic Tumors of the Abdomen." By George H. Bixby, M. D.

Both of these papers are well prepared.

Eighteenth Paper—"A Case of Solid Uterus Bipartitus; both ovaries removed for the relief of epileptic seizures ascribed to ovarian irritation." By E. R. Peaslee, M. D.

This paper is occupied entirely with the description of a very painful case in which the operation of normal ovariotomy was performed for the relief of epileptic seizures from ovarian irritation. The patient died in sixty hours after the operation from peritonitis.

In the discussion that followed this paper, Dr. Peaslee observed that "he wished it to be understood that he disapproved of normal ovariotomy as generally understood by that term. It should not be done to avert physical suffering, but to prevent idiocy through mental suffering."

Nineteenth Paper—"The Origin and History of Calculi found in the Bladder after the Cure of Vesico-Vaginal Fistula by Operation." By H. F. Campbell, M. D.

Twentieth Paper—"Rare Forms of Umbilical Hernia in the Fœtus." By J. R. Chadwick, M. D.

Both of these are excellent papers, and highly creditable to the authors.

"In Memoriam—Gustav Simon." By Paul F. Mundé, M. D. This beautiful tribute to the memory of this distinguished surgeon and gynæcologist closes the volume. We hope the Society so auspiciously begun will go on to perfection, from year to year developing the yet hidden resources of scientific knowledge in this most interesting and important branch of medicine. The volume is creditably gotten up. F. E. W.

Medical Thermometry and Human Temperature. By E. C. Seguin, M. D. William Wood & Co., New York. 1876.

Having no extensive knowledge or experience in the use of the thermometer in disease, or of the different grades of temperature, except so far as can be elicited by the touch, I do not think it would be practicable or desirable for me to attempt anything like an extended review of this book. In perusing its pages I was often impressed with the dryness and unattractiveness of the subject, and it was a matter of surprise to me that a subject so apparently unfruitful should suggest thought and matter to fill over 400 pages. The author seems to be thoroughly versed in all the practical bearings of the subject, and decidedly made a very good book, though his style would not be suggestive, to any one not interested in the subject, of any thing calculated to arrest the attention. Therefore it would not be prudent in me to speak of the use of the thermometer in diagnosis, prognosis, or treatment, or to follow the author through the different chapters of the book, having little personal knowl-

edge upon which to base any criticisms I might offer. Suffice it to say, I think the author has done full justice to the subject, and the book is to be commended to all who are interested and are possessed of the necessary skill to carry out in practice his views of medical thermometry. F. E. W.

Principles of Theoretical Chemistry, with special reference to the Constitution of Chemical Compounds. By Ira Remsen, M. D., Ph. D., Professor of Chemistry in the Johns Hopkins University. 12mo. pp. 231. Philadelphia: Henry C. Lea. 1877. Cloth, $1.50. A new and valuable work.

An Index of Diseases and their Treatment. By Thomas Hawkes Tanner, M. D., F. L. S. Second edition. Revised by W. H. Broadbent, M. D., Fellow of the Royal College of Physicians, etc., etc. 8vo. pp. 433. Philadelphia: Lindsay & Blakiston. 1877. Cloth, $3.00. This work has been long out of print. It is very useful and valuable to practitioners; few more so.

An Elementary Treatise on Practical Chemistry and Qualitative Inorganic Analysis, specially adapted for use in the laboratories of schools and colleges, and by beginners. By Frank Clowes, D. Sc., London, Fellow of the Chemical Societies of London and Berlin, etc. With illustrations. 12mo. pp. 372. Philadelphia: Henry C. Lea. 1877. Cloth, $2.50. For practical work in the laboratory this book will be an excellent guide and aid.

Calculi Found in the Bladder after the Cure of Vesico-Vaginal Fistula. By Henry F. Campbell, M. D., Augusta, Ga. pp. 10. Reprint from Volume I, Gynæcological Transactions, 1876. From the author. The opinion of the accomplished author is that such calculi exist before the operation and are not formed after it.

Medical Organizations and their Value. An address delivered before the Alumni Association of the Jefferson Medical College, March 9, 1877, by William B. Atkinson, M. D. Published by order of the Association. A very useful and suggestive paper.

Micro-Photographs in Histology, Normal and Pathological.

By Carl Seiler, M. D., and Joseph G. Richardson, M. D. Volume I, No. 9. Published monthly. Philadelphia: J. H. Coates & Co., 822 Chestnut street. London: Macmillan & Co. Sixty cents a number, $6.00 per annum.

Poisonous Effects of Cyanide of Potassium. By Joseph Jones, M. D., Professor of Chemistry and Clinical Medicine, Medical Department University of Louisiana, Visiting Physician of the Charity Hospital, New Orleans. pp. 20. From the "New Orleans Medical and Surgical Journal," May, 1877. From the author. The author in this paper teaches that this poison poisons all of the organs and tissues.

How to Use the Ophthalmoscope. Being Elementary Instructions in Ophthalmoscopy. Arranged for the use of students. With thirty-five illustrations. By Edgar A. Browne, Surgeon to the Liverpool Eye and Ear Infirmary and to the Dispensary for Skin Diseases, etc., etc. 12mo. pp. 120. Philadelphia: Henry C. Lea. 1877. Cloth, $1.00. An efficient, lucid and most valuable guide.

Outlines of Modern Chemistry, Organic, Based in part upon Riches' Manuel de Chemie, by C. Gilbert Wheeler, Professor of Chemistry in the University of Chicago. A. S. Barnes & Co., New York and Chicago, 1877. From the author. The author has simplified in this book many of the intricacies of chemistry.

Notes on the History and Climate of New Mexico. By Thomas A. McParlan, Surgeon U. S. Army. From the Smithsonian Report for 1876. pp. 28. Washington: Government Printing Office. 1877. Those interested in the climate of New Mexico will find this a valuable and instructive paper.

The Physician's Visiting List for 1878. Twenty-seventh year of its publication. Philadelphia: Lindsay & Blakiston. Sold by all booksellers and druggists. Fully equal to any issued. It is too well known to need description or praise.

Nurse and Patient, and Camp Cure. By S. Weir Mitchell, M. D., author of "Wear and Tear, "Fat and Blood," etc. Reprinted from "Lippincott's Magazine." Philadelphia: J. B. Lippincott & Co. 1877. A pleasing and suggestive little book.

Tracheotomy in Diphtheria. By J. H. Pooley, M. D. Reprint from Richmond and Louisville Medical Journal.

The Toner Lectures, instituted to encourage the discovery of New Truths for the advancement of medicine. Lecture V, on the Surgical Complications and Sequels of the Continued Fevers. By William W. Keen, M. D., of Philadelphia. Delivered February 17, 1876. 8vo. paper, pp. 68. Washington: Smithsonian Institution. April, 1877.

The Scientific Basis of Delusions. By Geoege M. Beard, A. M., M. D., Fellow of the New York Academy of Medicine, Member of American Medical and Neurological Associations. 8vo. paper, pp. 47. New York: G. P. Putnam's Sons. 1877.

Ninth Annual Report of the Presbyterian Hospital in the City of New York, for the year 1877. 8vo. paper, pp. 51.

First Annual Report of the State Board of Health of the State of Wisconsin, for the year ending December 31, 1876. 8vo. paper, pp. 51.

Lectures on Practical Surgery. By H. H. Toland, M. D., Professor of the Principles and Practice of Surgery and Clinical Surgery in the Medical Department of the University of California. With numerous illustrations. 8vo. pp. 508. Philadelphia: Lindsay and Blakiston. 1877.

Transactions of the Medical Association of the State of Missouri, at its Eleventh Annual Session, held in Kansas City, April, 1877. 8vo. paper, pp. 81.

MISCELLANEOUS.

"Non omnes eadem mirantur ament que."

The Royal Medical and Chirurgical Society.—Attention may justly be directed to the carefully prepared paper of Dr. Sansom, as it will doubtless form the starting-point for further investigation. In examining the blood of a severe and rapidly fatal case of noma, Dr. Sansom found that fluid to contain a large

number of minute crystalloidal-looking bodies, quite different from bacteria and their congeners in appearance, but having in common with these organisms the power of motility in a high degree. Increasing in number with rise in temperature, arrested in their movements by various reägents, and appearing in large quantities in the excretions, it seemed as if they formed an essential part of the affection, if they were not indeed the *fons et origo mali.* But Dr. Sansom, with true scientific caution, forbore to jump at conclusions; and, seeing that in another example of the same disease he had failed to find any similar blood changes, and that Mr. Godlee, in examining the blood of a like case, had also failed in detecting any such bodies in the blood, it will be evident that he was fully justified in his caution. On the other hand, the manner in which inoculation of the blood into animals produced similar changes in the blood of the recipient, pointed at any rate to the highly infective nature of that fluid, and the rapidity with which its presence could set up like changes in previously healthy organisms. There was a doubt, however, even as to the nature of the bodies described, and Dr. Harley, although certainly extending his theory beyond warrantable limits, must be credited with a suggestion of some value—viz., that the bodies in question proceeded from the detritus of blood-clot. This suggestion, however, would not account for the evidences of vitality possessed by the bodies in question, and in his closing remarks, Dr. Sansom intimated that in order to overcome this difficulty he had to imagine the existence of a thin basis of protoplasm—so structureless and so delicate as to elude the powers of the microscope. He does not, however, appear to have attempted a verification of this hypothesis by the use of staining reägents ordinarily employed to discover protoplasm; and the remarkably rapid movements of the bodies, when isolated, almost negative the idea of a protoplasmic matrix. The conclusion to which every one must come is that we know very little indeed yet concerning the microscopic pathology of the blood, but as a contribution to that complex subject, Dr. Sansom's laborious investigation will doubtless receive careful attention.—*London Lancet.*

Consumption a Disease of In-door Life.—Among the natives of Senegambia pulmonary affections are not only nearly but absolutely unknown; yet a single year passed in the over-crowded man-pens and steerage-hells of the slave-trader often sufficed to develop the disease in that most virulent form known as galloping consumption; and the brutal planters of the Spanish Antilles made a rule of never buying an imported negro before they had "tested his wind;" i. e., trotted him up-hill and watched his respirations. If he proved to be "a roarer," as turfmen term it, they knew that the dungeon had done its work and discounted his value accordingly. "If a perfectly sound man is imprisoned for life," says Baron d'Arblay, the Belgian philanthropist, "his lungs, as a rule, will first show symptoms of disease, and shorten his misery by a hectic decline, unless he should commit suicide."

Our home statistics show that the percentage of deaths by consumption in each State bears an exact proportion to the greater or smaller number of inhabitants who follow in-door occupations, and is highest in the factory districts of New England and the crowded cities of our central States. In Great Britain the rate increases with the latitude, and attains its maximum height in Glasgow, where, as Sir Charles Brodie remarks, windows are opened only one day for every two in Birmingham, and every three and a half in London; but going farther north, the percentage suddenly sinks from twenty-three to eleven, and even to six, if we cross the fifty-seventh parallel, which makes the boundary between the manufacturing countries of Central Scotland and the pastoral regions of the north.

It is distressingly probable, then, to say the least, that consumption, that most fearful scourge of the human race, is *not* a "mysterious dispensation of Providence," nor a "product of our outrageous climate," but the direct consequences of an outrageous violation of the physical laws of God.—*Dr. Felix L. Oswald, in Popular Science Monthly.*

Davyum.—A new metal christened by this title has recently been isolated by M. Serge Kern. It belongs to the platinum group.

MEDICAL NEWS.

'Nulla dies sine linea."

Dr. Alfred B. Taylor, the celebrated author of the work on Jurisprudence, has resigned his position as a teacher of jurisprudence in Guy's Hospital, London.——The new School of Pharmacy in Paris is being organized on an immense scale. It covers 17,000 square yards of surface, and will accommodate six hundred students in laboratory work.——Wünderlich, the great Professor of the University of Leipsic, is dead. His Manual on Medical Thermometry is his most celebrated work, and would alone have made him distinguished.——The famine in India was, in August, killing 4,220 per week. It is now gradually being mitigated, and the mortality has sensibly decreased. ——There are constant consultations over the Pope. From all accounts he does not seem to lose much ground, and "the end is not yet," nor likely to be very soon.——Sir Charles Murchison, of London, England, is doing good service by exposing the farce of "clinical teaching" as it is usually carried on; the patient (convalescent or suffering only from chronic disease, acute diseases being rarely ever seen by the class) being introduced as a text and a didactic lecture delivered in regard to his disease, and nothing said in regard to himself. The "clinical lectures," so called, which are published are generally farces. If adapted to the class, they are primary in basis and character, and it is almost an insult to publish them for physicians' study; if adapted for publication and the professional instruction of physicians, they are not adapted to a class. Is it not time for the "clinical lecturers" and the journals to abate this monstrous nuisance of sending to physicians of culture and experience "clinical lectures" made up of elementary lessons in pathology and treatment?——The old Chapel Hill School of North Carolina is to establish a medical department.——Dr. Burdon Sanderson will deliver the Harveian oration for 1878. ——Brudenell Carter has resigned his position in the Royal South London Ophthalmic Hospital.——Hospitals for the "well-to-do" sick are being extensively established in Europe. The New York Hospital is "following suit," as that institution is now devoted to the relief of those "well-to-do" rather than to

the aid of the poor.——William Gale, the Welsh pedestrian, who recently performed the unprecedented feat of walking 1,500 miles in 1,000 hours, is to walk "4,000 quarter miles in 4,000 consecutive periods of ten minutes each."——Russia is suffering from a want of doctors in both her military and civic service. The people in civil life are doing in regard to doctors what children are said to do for doses of "soothing syrup"—crying for them. Can not some of the 70,000 saw-bones in the United States find herein "an opening" and "their opportunity?"——The statue of Robert James Graves is at last erected. It does not, however, contain as a part of the inscription the three memorable words which he desired to be a part of his epitaph, "He fed fevers."——There was something almost ludicrous in Queen Victoria's selecting as a proper "decoration" for two distinguished Health officers (Robert Baker and Alexander Redgrave) the order of "The Bath."

EDITORIAL.

"Nullius addictus jurare in verba magistri."—Hor.

Preferring Charges against a Physician.—The preferring of charges against a physician is so frequently suggested, so seldom done, and so barren of results when it is done, that a few lines on the subject will, it is hoped, be useful and opportune.

On the editor's table there lies a pamphlet entitled "An Exposition of Facts." It is a brief history of the preferring of charges against Dr. J. H. Baxter, of Washington, D. C., by Dr. A. Y. P. Garnett, of the same city. It seems that there has been much feeling aroused in Washington on account of the professional attendance of civilians by medical officers of the Army and Navy stationed there; such attendance being occasionally charged for, but usually rendered "free of charge." To those not informed in regard to "the Regulations" governing medical officers of the Army and Navy, it is proper to say that attendance upon civilians is not permitted to such officers unless medical service can not be obtained otherwise; and while there is an effort by interested parties to differently construe the am-

biguous phraseology of these "Regulations," it must be manifest to every one of fair brain and fair dealing that the Government can not pay medical officers to wait professionally upon those not in its service; while as a matter of courtesy or humanity it allows such attendance to be given "where other medical attendance can not be procured." Whether President Grant or President Johnson so used the medical officers of the Army or Navy is a matter of not the least consequence; in so doing they set the example of a clear and manifest breach of discipline and law. No medical officer of the Army or Navy can honestly or properly expend the time for which he is paid by the Government in attending on civilians; whether he is paid for so doing in money or whether he is paid by patronage, official support, or official and personal influence. It is undeniable that all officers who render such service expect to be paid, if not in money certainly in something more valuable. For as every officer must be assigned to duty, it is a matter of great importance to him what that duty shall be and where it is to be performed; some positions and stations are all that is pleasant and desirable; others are all that is repulsive, arduous, and even offensive. To attend a President and his family, or a Cabinet officer and his family, or an influential Congressman and his family "free of charge," is a mere sham, so far as the pretence or plea of gratuitous service is concerned; the medical officer is paid in something far more valuable than money; official patronage, protection and influence. Those so practicing "free of charge" wrong citizen physicians, and are really receiving "the highest pay." There may be exceptions to this rule, and doubtless there are a few, where medical officers with clean hands and a clear conscience render such service, but such cases are rarer undoubtedly than angels' visits; and in these days such visits are rare indeed.

With these preliminary considerations one can understand fully the merits of the question in regard to the charges preferred by Dr. Garnett against Dr. Baxter, of Washington; the first civil practice and the other made *per gratia* a medical officer of the army "over the heads of more than one hundred members of that Corps."

Dr. Garnett charges Dr. Baxter with offering to treat free of

charge a female patient whom he (Dr. Garnett) was then attending; with offering to treat ex Senator Trumbull's wife, then under the professional care of Dr. Harvey Lindsley; with offering to treat the wife of the Hon. H. B. Banning, said patient being then under the treatment of Dr. Garnett; with calling upon "a lady in high official position," then being treated by Dr. D. W. Bliss, and informing her that the said Bliss had asserted that he was treating this patient for tertiary syphilis. He (Garnett) offers his own testimony to prove what is alleged in regard to Baxter's offering to treat Garnett's patients. In regard to the Trumbull matter he offers a letter from Dr. N. S. Lincoln, of Washington; and in regard to the patient of Bliss he offers Bliss as a witness.

It may seem passing belief that when the Association of Washington and Georgetown specifically appointed a committee to investigate these and other abuses, this committee, consisting of the following responsible and distinguished physicians, A. Y. P. Garnett, J. W. H. Lovejoy, Johnson Elliot, and S. C. Busey, and that when the proofs were collected and ready, the Association could commit the stupendous folly of resolving that "no evidence could be received which was not the equivalent of sworn testimony!!" That any thing more stupid was ever enacted it is impossible to believe. Did not the Association know when it ordered this investigation that it had no legal power to subpœna witnesses and to place them under oath; and that all the testimony possible could be only that which it stultified itself by rejecting? Should a man give an order for the construction of a brick house and then after the collection of the material of which he knew the house was to be composed say to those employed by him, that nothing not equivalent to stone could be received, the employees would place upon such an impostor the strong bands of the law and compel him to receive what he had knowingly and deliberately ordered. And yet such a man would not be more absurd or more false than this Association has been towards its employees. The difference in the two cases is this, that the employees of the man have the law to protect them, while the employees of the Association can only rely upon the good faith and honor of their em-

ployer. What the result of such reliance has been, this pamphlet very forcibly and correctly demonstrates. One turns from the record with a feeling of overwhelming disgust and depression. There is but one redeeming feature in this whole picture of tergiversation, cowardice, duplicity, and folly, and that is the manly and admirable conduct of the committee charged with the responsible and important work committed to it. The gentlemen composing it are worthy of all praise, and if their official parent thus outrages its own offspring, these will be thanked and remembered by their older and higher ancestor, the Body of the Medical Profession.

It seems that Dr. J. H. Baxter, when a delegate from the Provost Marshal's Office (!!!) to the meeting of the American Medical Association at Boston, Mass., June, 1865, was one of that infamous committee which recommended the disgraceful expulsion of Dr. Montrose A. Pallen, of Missouri (now of New York), on the silly suspicion (not evidence) of doing something or other that really could not possibly be done; Pallen being absent, and the Association committing the inconceivable folly of receiving such a report and acting upon it!! "The mills of the gods grind slowly, but they grind exceedingly small."

Can charges be tried? Will a society show the nerve and pluck to honestly try them? Or will it "white-wash" the accused and disgrace itself? It will be remembered that a few years ago a physician of Kentucky preferred charges against another of the same State; a medical man known at that time among the readers of daily newspapers as the "Great Surgeon of the Mississippi Valley." These were presented (April, 1872,) to the Kentucky State Medical Society; a Body of which both physicians alluded to were members, and before which were present some of the most distinguished physicians, each ready to substantiate the truth of the charges. What was the result? Several members, when the matter came up, were suddenly called to obstetric cases (!!); they lied and fled. One member moved to refer the charges to a society altogether different (it is difficult to believe that such a piece of stupidity could be enacted, but it was). Another member seconded the motion. The President, pledged officially and honorably to be governed by

the constitution, which distinctly provides that all charges preferred against members shall be tried by the Society, weakly entertained the motion and "put it." The yeas and nays being demanded, the accused, his brother and father voted not to demand an investigation of the charges, but to evade them by the device suggested. The motion passed by a small majority. The President cried in a week after peccavi; others did likewise; the obstetric cases were all postponed; and the cowardly fugitives returned after the engagement was over. The accused presided afterwards at the meeting of the chief medical society of this country; the society originating the code of ethics, providing for a court medical, and the mode of expurgation of its official roll!!

"Thou art the author of such a book of follies that it would take the tears of all the angels to blot the record out," may be said of most societies enacting the farce of providing by constitution for the discipline of its members and the purity of its record; for when the emergency arises, there is heard only the Waterloo cry of the French, "*Sauve qui peut*"—let each one take care of himself. Some ingenious and plausible tricksters, afraid of responsibility, claim that they join a society for the discussion of science and its intricacies. These scions of science urge that they are unwilling to give their valuable time to the investigation of "charges," forgetting that they subscribed to a constitution and by-laws making this duty, however unpleasant, incumbent upon all. The plea is usually a subterfuge; they are unwilling to make an honest stand for the right and for punishing the wrong; and belong to that politic class who, in the language of Hamlet, are ever ready to

> "Crook the pregnant hinges of the knee,
> Where thrift may follow fawning."

Unfortunately these individuals render abortive every effort to try fairly and honestly the charges made against any member of a society. So generally are they to be found in every society that it is impossible to bring the guilty to trial, or to expect the support of justice and right.

When such an Association as that of Washington and Georgetown, a Body of distinguished physicians, deliberately orders

an investigation; when it makes up such a committee as that represented by Garnett and Lovejoy and Elliot and Busey; when this committee assumes its responsible labor and collects evidence beyond cavil and dispute; and when carrying this proof to the Body ordering its collection it is met with the stupid, cowardly plea, that "no evidence could be received which was not the equivalent of sworn testimony," and without such impossible evidence the accused, like those similarly situated in other societies, must be "white-washed," medical men may well pause and ask whether a medical society can be relied upon for sustaining the character of the medical profession? This Washington lesson will serve a good purpose after all, if it calls the attention of members of medical societies to the necessity of firmness and decision when charges are preferred and are to be tried. Perhaps after all a woman can give here the best advice; the advice Lady Macbeth gave to her shrinking, cowering husband:

> "But screw your courage to the sticking-place,
> And we'll not fail."

So may it be.

The Louisville Medical College Suit.—Dr. E. S. Gaillard, Dean of the Louisville Medical College, gives, in recent numbers of the "Richmond and Louisville Medical Journal" and the "American Medical Bi-Weekly," a short explanation of a suit by a student against that Institution, which has been made much of by interested parties. From this statement it seems that Mr. Sale, the student aforementioned, paid his fees for a course of lectures in the Louisville Medical College, but being *afterwards offered free tuition in another Louisville School*, demanded the return of the money. This was refused; he was also refused his tickets until the close of the term, a very proper procedure, as every one knows that tickets are received as certificates of attendance on college lectures. This great "legal cause" was tried before a justice of the peace, and judgment was given against the College on the ground that the present Faculty was not legally elected.

Dr. Gaillard states that the book of minutes of the proceedings of the Board of Trustees shows that the present Faculty

were legally elected by the present Board, and one of the last acts of the old Board was to elect them before it finally adjourned. This book was not produced at the suit before the magistrate's court,* on account of the illness (which proved fatal) of the Secretary of the Board of Trustees, but will be before a higher court.

Dr. Gaillard's letter is frank and manly, and we hope that those journals which gave such wide circulation to the proceedings before an obscure magistrate will do a professional brother the justice of placing the real facts in the case just as prominently before their readers.—*St. Louis Clinical Record.*

NOTE.—This editorial from Dr. W. B. Hazard, editor of the "Saint Louis Clinical Record," is worthy of commendation for its terseness, lucidity, and justice. He expresses a vain hope, however, when he "hopes that those journals which gave such wide circulation to the proceedings before an obscure magistrate will do a professional brother the justice of placing the real facts in the case just as prominently before their readers." The editor of this Journal once entertained the same "hope," but it was soon and absolutely destroyed. The journals which were, it seems, so quick to copy a dirty and malicious libel, sedulously refrained from publishing refutory facts taken from official records; and it is a pitiable reflection upon not the magnanimity but the truthfulness and justice of the American Medical Press that, with the exception of the "Chicago Medical Journal," not a single medical periodical voluntarily published a word in refutation of a foul libel which had been so promptly copied and so industriously circulated. When one of the officers of the College mentioned, after vainly waiting for justice, requested by letter that those journals which had been so prompt to circulate this libel should copy the refutation of it given by the "Chicago Medical Journal," it was pitiable to see the result. The "New York Medical Record" made a bare extract; the "Philadelphia Medical and Surgical Reporter" (which had copied the libel) evaded the request and declined to undo the injury it had done; the "Virginia Medical Monthly" published the extract from the "Chicago Medical Journal," not because it was just and manly to do so, but because it had been "officially requested;" so of the "Nashville Medical Journal;" the "Philadelphia Medical Times," which had made itself liable to legal action for its foul and untruthful assaults upon the Institution named, has never yet had the decency or the fairness to publish a line in refutation of the many falsehoods which it has sedulously copied; other journals which were so quick to republish defamatory articles have been pitiably silent and unwilling to correct errors they had so freely circulated. The official records of the Board of Trustees of the Louisville Medical College, as kept by Dr. B. M. Wible, the Secretary, a man the very embodiment of truth, demonstrate that the pleas

* The book was once produced in that court by the Secretary of the Board of Trustees in person, but the case was very conveniently postponed.—E. S. G.

set up in the Sale suit were false and fraudulent, and that the judgment given is without a single fact upon which it can honestly rest.

The Louisville Medical College, in spite of the filthy and dirty streams of falsehood and defamation so persistently poured upon it, stands to day in close corporate affiliation with the oldest and best medical colleges in this country; its past a series of undeniable successes; its present superior to that of many colleges far older; and its future better than ever before. THE NUMBER OF APPLICANTS FOR GRADUATION IS ALREADY DOUBLE THAT OF THE LAST SESSION. This fact shows the degree of confidence placed by the Medical Profession in the dirty libels that have been circulated.

This College has been and evidently is independent of the Medical Press; for this has never on any occasion been even the smallest factor in the success of the Institution, while it has been powerless in its attempts to injure or affect it. But the Press that has originated or copied slanders upon this College can not now afford to be silent, provided it expects to receive the support of the just and decent members of the Medical Profession. When a medical college more than doubles its number of applicants for graduation in the single year during which blackguardism and falsehood have done their best to destroy it, it is but a feeble method of expressing the truth to say that such an Institution can be absolutely indifferent to the praises of the Medical Press, whilst it can well afford to despise its meanness and malevolence.

Fair Play.—As this Journal has been the warmest supporter of Harvard University; of the University of Syracuse; of the Medical Department of the University of Pennsylvania; as it has given a heartier and more constant support than all other Journals combined to the University of Michigan in its hours of need, in its great sorrows, in its dangerous trials and sorest difficulties; as it has given not only a surface but a practical support to the Confederation of American Medical Colleges, it is sure that all who love fair-play will feel that it is only right that it should occasionally give support to the Louisville Medical College. And when it is known that though the editor of this Journal happens to be one of the founders of this College, and responsible in part for its record, he has not given to the Institution any more than to the others named a just support, there can be no doubt but that all lovers of fair-play will read with pleasure *the facts* presented in the preceding editorial.

Delay of Issue.—It is to be hoped that the subscribers will not object to the late issue of this number, as the delay is due solely to its increased size.

RICHMOND AND LOUISVILLE

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ORIGINAL COMMUNICATIONS.

"Qui docet discit."

ART. I.—*On Kolpokleisis and other Allied Procedures as Means of Treating Vesico-Vaginal Fistule. Being an Answer to the Article of the late Professor Gustave Simon, of Heidelberg, entitled "A Comparison of Bozeman's Operation with that of the Author."* By NATHAN BOZEMAN, M. D., Consulting Surgeon to St. Elizabeth's Hospital, New York.

Our Correspondence.—I shall here introduce the correspondence which passed between Professor Simon and myself about a year after the specified operations were begun, in order to show the views which we both entertained at that date with respect to the causes of failure in the so-called "little Russian" (Case II) upon which we operated jointly, and to indicate the value attached by each of us to the points distinguishing our respective methods of operation. This course seems to be particularly called for, since Professor Simon has referred in his paper to several of these points relating to my particular views, without connecting them with the circumstances under which they were at that time discussed. Therefore, in justice to myself and likewise to my distinguished opponent, I submit, as a part of my reply, the letters which we interchanged, believing that no sort of objection can be raised to this procedure, because of the purely scientific interest of the correspondence.

[TRANSLATION.]

"Honored Colleague,—Up to this time we have vainly hoped for your visit. We have still in the hospital the patient (little

Russian) upon whom you performed the operation with unsuccessful result. I would be very glad if you would again operate upon this case, as I believe the cure will now be very difficult, since you have cut out so much substance.

"We have also several more fistules, which lie in the anterior part of the urethra, for you to operate upon. The rest I will communicate to you verbally.

"Yours respectfully,

"PROFESSOR SIMON.

"HEIDELBERG, September 25th, 1875."

"My dear Professor Simon,—With regard to the case to which you refer (little Russian), it is to me most interesting, and I should be delighted to complete the cure, as I feel very confident I could at another operation, were it possible for me to return to Heidelberg.

"The failure of my first operation resulted, I am satisfied, from an improper understanding on my part of the relationship of the end of the urethra to the anterior lip of the uterus. This little point constitutes, I conceive, a most important difference between your operation and mine, and when one follows another, as in the order of this case, without proper consideration, a similar failure is liable to take place in a majority of cases. This mainly arises from the difference existing between us in the position of the patient. Your position (Steiss-Rückenlage) requires that the uterus shall be pulled down to the mouth of the vagina, thus placing the anterior surface of the cervix uteri under and opposite the urethral surface of the vagina. In this relationship the two opposing surfaces are pared off, and with your silk sutures lapped one upon the other. In this relationship they usually unite, I have no doubt, with considerable certainty, unless the traction be very great, and in that event a partial failure is likely to follow from the cutting out of the central sutures, as happened after your operation in the case. In either event, however, there must result from the retraction of the uterus a curvature of the urethra at the seat of union, with the concavity presenting to the pubic arch. In my position (*the knee-chest*), the parts, on the contrary, are oper-

ated upon *in situ*, without being changed in their normal relationship. The result is that the edges of the fistule, instead of the surfaces named, are pared perpendicularly and coäptated without subsequent distortion of the urethra. In the event of failure at any point in the line of union, the little remaining fistulous track extends directly through between the original borders, and not between flat opposing surfaces as happened after your operation.

"In my operation in the case in question, it was from not knowing the extent to which the urethra had been overlapped by the cervix that I was unconsciously led to remove so much of the urethra in the paring process, and from which you now apprehend incontinence of urine when complete closure is effected. Had I understood the relationship of the parts involved at the time I operated as well as I do now, as I believe, *I should have divided your cicatrix on either side of the fistule to the extent, at least, of restoring the opposing edges of the fistule to a smooth plane, just as I am in the habit of doing in cases where the cervix uteri is fixed in the bladder.* Even in the third operation now called for I should proceed in this manner, and should expect to get a good result, both as to closure of fistule and retention of urine.

"Now, Doctor, these are my views of the case, frankly stated. If yours should differ, may I ask you to be equally frank in stating them. The point I conceive to be one of great practical importance, and well deserves serious consideration. My great regret is, that I am unable to come to Heidelberg and talk with you on the subject. I still hope, however, to see you again before I return to America next year.

"Yours very truly,

"NATHAN BOZEMAN.

"PARIS, September 30, 1875."

[TRANSLATION.]

"Highly respected Colleague,—I write to you once more to invite you to come to Heidelberg in the course of eight or ten days. It is only necessary for you to spend from eight to fourteen days, perhaps even a shorter time, to carry out everything

which will enable us to complete our judgment upon your method of operating. I will mention the matters which I would most gladly have settled, and at the same time will refer to you other points which may be interesting to yourself.

"1. I would like you to carry out the operation in the case of the little Russian, which you have yourself proposed. I had consulted with my assistants concerning the same method, but I fear that continence will not be obtained in this manner, even if a perfect cure take place. Before your operation upon the fistule, only the size of a pea, the urethra was $2\frac{1}{4}$ centimetres long, and, after the same, only $1\frac{1}{2}$ to $1\frac{1}{4}$ centimetre. Should the urethra be again treated in the same manner—viz., be cut out with so great a loss of substance—there would remain only one-quarter to one-half a centimetre. Therefore, the cure of the defect would, by your method of operation *at this point*, be very doubtful, because the edge of the urethra is very thin, and the posterior edge, lying within the uterus, would be bruised to some degree by excising with the scissors. I would have more confidence in the plan if the entire operation had been carried out with the knife alone, and if the urethral part of the defect had been saved as much as possible. As, however, it happens that you count with great confidence upon the cure, even if you excise with the scissors, I beg you, on that account, to carry out the operation yourself.

"2. I have again five patients here with fistules. You can now operate upon fistules *which lie against and in the urethra*, while I will operate in those cases which *lie deeper in the vagina*.

"3. I have further to inform you that the patient upon whom you last operated, and in which case, at the time she left Heidelberg, a fistule remained through which the point of the finger could enter the bladder, will only return here next spring. At present she believes she could not endure so trying an operation.

"4. Finally, I desire to convince you also of the ulterior results in the cases of the two women upon whom I operated for urethro-vaginal fistule. You doubtless remember the case of the woman (Feige) upon whom another surgeon had performed transverse obliteration of the vagina, and which I again separated. In this case there was an oblique-lying urethro-

vaginal fistule, and after the widening operation of vagina by yourself, there was a second small fistule, the size of the button of a probe, in the neighborhood of the mouth of the womb. The first fistule which I operated upon in your presence, and in which a small opening remained, turned out precisely as I had said in advance, and as I have already informed you, on the occasion of your passing through Heidelberg; viz., healed of itself without any further operation and without any cauterization, after the third week, by cicatricial contraction. The second little fistule, which lay at the mouth of the womb, I operated upon later, and healed.

"In the second urethro-vaginal fistule (Weick), in which the widening by incisions with the subsequent treatment by tampons, was alike without result, I brought about the closing of the opening, as you will remember, by means of six sutures. But immediately after the operation the urine flowed off. Upon examination, after the cicatrization, the fistule was found to be healed along the entire line of union. Only a very small slit of the outermost left angle, which lay outside of the suture, still remained open. This little slit was obviously not closed by the suture, and, on this account, the flow of urine immediately after the operation can be explained—this little slit was afterwards united and healed by means of two fine sutures. The patient is now very well, and she menstruates regularly through the vagina, which is certainly very much narrowed. She often comes here, and we have recently examined her condition.

"In the course of the summer we had many cases of fistules, and, on that account, I am most sorry that you did not visit us. I have cured six fistules, among them two lying very deep in the vagina, both being cured by the first operation. As yet I have made no use of your method.

"With the wish that you will at once write me whether you can come at any specified time, and in the hope of soon greeting you personally, I subscribe myself,

"Your obedient colleague,

"SIMON.

"HEIDELBERG, October 13th, 1875."

"My dear Professor Simon,—Your favor of the 13th instant was duly received.

"Your kind invitation to me to visit Heidelberg again for the purpose of operating with you in the hospital for vesico-vaginal fistule I fully appreciate, and I assure you I would come most willingly were it not that I am confined here with my children. I should like to take more time with you than it is possible for me to afford at present.

"There are two or three points, independent of the operation required for the little Russian patient, that are of the greatest practical importance to gynæcological surgeons, that I should like to discuss with you by the practical mode of dealing with the subject that we have already so satisfactorily inaugurated. I refer to cicatricial contractions of the vagina and to partial and complete obliteration of the same for the relief of incontinence of urine. I will, therefore, put the questions in the form of propositions and ask your answers to the same, believing that they will represent more exactly the state of the science in Europe at the present time than any information which might be obtained from any other surgeon known to me in connection with the subject.

"1. Is the existence of a cicatricial contraction or narrowing of the vagina an insurmountable obstacle to the closure of a fistule situated above it, and to the preservation of the functions of the organs involved? And, if so, why?

"2. Is partial or complete obliteration of the vagina, with incomplete or perfect perversion of the functions of the organ, justifiable for the relief of incontinence of urine? And, if so, what are the principal conditions demanding one or the other of these procedures?

"Of the first class of cases there is a pretty fair illustration to be found in the case of the young woman, Weick, who, you say, is cured of her incontinence of urine, and now menstruates regularly through the 'small remaining vagina.' The only objection that could be possibly urged against the result in this case is the existing vaginal atresia. In the General Hospital at Vienna a somewhat similar case, in the service of Professor Joseph Spaeth, was brought to my notice by his first assistant,

Dr. Massara, during my visit there last spring. But here the atresia, which was almost complete, was situated higher up the vagina than in your case, and the fistule of small dimensions presented itself just above in the *bas fond* of the bladder. This atresia of the vagina was the result, as I was told, of typhus fever, and was found to be of a very resisting character. The fistule was produced accidentally in an unsuccessful attempt to overcome the atresia of the vagina, as I was informed by Professor Karl von Braun, who had had the case under observation from time to time for four or five years. Another case in the same hospital, a Jewess from Hungary, in the service of Professor Braun, was presented to me for an examination and an opinion. The accompanying sketch will serve to give you an exact idea of the situation and size of the urethro-vesico-vaginal fistule, as well as of the recto-vaginal fistule, twelve centimetres from the anus. Here the cicatricial narrowing of the vagina, to the extent of about one-half of its calibre, existed just above the neck of the bladder, across the middle of the vesical fistule. Through the fistule the fundus of the bladder protruded, presenting itself at the vulva in the form of a tumor as large as a medium-sized orange. It was only possible to pull down the uterus by the aid of hooks, to the extent of placing the edges of the fistule not nearer than two centimetres from each other.

"Now, as to the practicability of overcoming the atresia in the case of Weick, and giving her a useful vagina, before your operation for closure of the fistule, I think you told me that you did not believe it possible. I said that I thought it was feasible, and, at your request, made the first incisions and instituted the process of dilatation. The result, as you know, proved unsatisfactory, and you proceeded to perform your operation for the incontinence of urine, which you inform me was successful after the second sitting. In justice to myself, however, and to the procedure adopted in this case to overcome the obstacle in question, I should say that my efforts were not a fair test of what might be accomplished under such circumstances. Having lost many of my dilators before going to Heidelberg, I had to resort to expedients which were not commensurate with the ends to be accomplished. Since that time I have supplied

myself with a good and suitable assortment of dilators, such as I am in the habit of using, and I am now prepared to deal with difficulties of the character in question in a more effective way. I am sure you would be interested in any efforts to give this young woman a useful vagina, and I doubt not a great deal toward it can yet be done by the employment of the means indicated; and, if I had five or six weeks' time to spare, I should like to undertake the operation in your presence. You will pardon me for saying that I believe this treatment to be of the greatest importance, and that I believe there is much to be learned by us all before we can hope to reach the highest limit of success in our operations either for incontinence of the urine or the fæces.

"In the second case cited, that of Dr. Massara, may I ask you what you would have advised under the circumstances? Am I right in supposing that the condition described called for obliteration of the vagina below the seat of stricture?

"The third case, that of Professor Braun, presented the unusual complication, as was stated, of recto-vaginal fistule, twelve centimetres from the anus, almost large enough to admit the point of the index finger. With the impossibility here of drawing the two sides of the vesical fistule together, and with the constant presence of fæces and urine in the vagina, may I again ask what you would have done? Would it have been possible, under the circumstances, for you to close such a fæcal fistule by your procedure? and, if not, would you consider obliteration of the vagina in the urethral portion justifiable?

"The second class of cases, comprising those which are comparatively free from cicatrized narrowing, and demanding a complete obliteration of the vagina, is known to be large, and the range of the operation itself is also known to vary with the experience of the operator. It is proper to state that two important subdivisions of this class of cases have been made and fully described by you in several of your published articles under the respective designations of transverse and oblique obliteration of the vaginal-kolpokleisis. To these I may add a third and a fourth, under the names of *felling and folding the edges of the fistule, with shortening of the anterior wall of the vagina.*

"Now these expedients are all well known to surgeons, and are at present largely employed, even in cases where the uterus is *movable* and the *vaginal walls* are in a comparatively healthy condition—the adoption of this mode or that, varying, as I have just stated, with the experience of the operator. You remarked to me during my visit at Heidelberg that you now did not have occasion to resort so often to obliteration as formerly, because your greater experience enabled you to overcome obstacles to the closure of the fistule itself, which previously had been thought insurmountable. So it is with all young and inexperienced operators now; and even in this advanced state of the science the result is, that we find many of them adopting some one of the expedients named, under circumstances which you and I would regard as unjustifiable. As to the exact extent to which you consider oblique or transverse obliteration of the vagina necessary at the present day, I confess myself ignorant; but, as you have given the matter so much attention, I am sure there is no one better prepared to define it. Therefore, in the existing advanced state of your experience and knowledge, will you have the kindness to give me your views upon the subject?

"The case of the woman from Holland, in your service, upon whom I operated last December, presented a funnel-shaped vesico-vaginal fistule of no great size, it is true, but which was situated entirely to the right of the median line, with both edges deeply inverted, and the lower one firmly adhering to the posterior surface of the corresponding pubic bone. After your examination you said that you had only seen one similar instance, and that occurred at Rostock, when you first applied the principle of oblique obliteration, and you remarked further that the same procedure was called for in this case. I may state that I operated successfully upon a similar case in the hospital at Vienna, in the service of Professor Karl Braun, in which it was previously thought that oblique obliteration, in accordance with your method, was necessary.

"I suppose that, in the case of the little Russian patient, if the urethra is thought to be too short to justify an operation upon the fistule itself, you would advise transverse obliteration. Again, in uretero-vaginal fistule (Harnleiter-Scheidenfistel), I

believe you still practice perforation of the vesico-vaginal septum and then oblique obliteration. Besides this, I infer that there are quite a number of deep, and even small fistules (im Gewölbe) associated with immobility of the uterus which call for oblique obliteration.

"The circumstances justifying transverse obliteration I think I understand very well.

"Of the other two expedients referred to; viz., felling and folding the edges of the fistule, I also understand the extent of their applicability. These two methods are very largely practiced in America by Dr. Sims and his followers. They necessitate, as you know, the turning of one or both edges of the fistule into the bladder, with more or less shortening of the anterior wall of the vagina.

"Therefore you will understand that my great object in asking you the foregoing questions is to ascertain, as nearly as possible, the conditions of the vagina and the peculiarities of the fistules which call for transverse and oblique obliteration. These procedures having been given to the profession by you, now about twenty years since, your present views as to their applicability and usefulness can not be otherwise than of the highest interest to me, a co-laborer with you in the same branch of practice.

"Hoping to hear from you at your convenience, I remain, dear Doctor, "Yours very truly,

"NATHAN BOZEMAN.

"PARIS, October 19th, 1875."

ART. II.—*A Case of Unilateral, Idiopathic Cutaneous Atrophy.* By I. E. ATKINSON, M. D., Physician to the Baltimore Special Dispensary. [Read before the Baltimore Clinical Society 1877.]

John Riley, of American birth, white, twenty years old, a driver by occupation and unmarried, came to the Special Dispensary September 18, 1877. He is of ruddy complexion, of medium height, and of vigorous physique. He has four brothers

and two sisters living and healthy, none being affected as he is. Seven sisters and brothers died young of various diseases. He is next to the youngest child who is living, as well as the one born next before him. His own general health is good. He has had the present affection ever since he can remember, but his mother has told him that she first noticed it about eight years ago, as a smooth white spot upon the skin of the abdomen, just below and to the left of the umbilicus. This spot was, from his account, the beginning of the subsequent changes, which either spread from it or made their appearance later. It is at present 7.5 centimetres in length by 2.5 centimetres in breadth in average dimensions, being, however, of a very irregular outline, and runs obliquely upward and outward. In color it is abnormally white. It is devoid of hair, and presents the appearance of great smoothness, which is also indicated by the touch as well as by a feeling of tension. When viewed at a distance, there is a strong resemblance to a scar, notably that caused by a burn; this resemblance disappearing upon closer and digital examination.

Throughout this area may be seen many short, tortuous, minute red vessels. Surrounding the patch by a not very clearly defined border is a surface whose general pigmentation is darker than that of the normal parts, being of a light brown, but to which a mottled aspect is given by little discoid or oval spots of whitened integument resembling the central white patch. In these little spots are likewise the same minute, tortuous vessels, which appear to be quite absent from the darker areas. These vessels run in all directions within the spots, but do not form a fringe or border around them. There are also others of these white areas within the pigmented borders which are without the vascular lines, but which aid in giving the mottled appearance to the whole patch. These small white spots vary in diameter from that of a pin-head to that of a split pea, but are neither depressed nor elevated above the level of the healthy skin, nor of that of the pigmented space in which they are included. This space extends superiorly nearly to the level of the umbilicus, is abruptly bounded by the median line, and runs downward along this line to the level of the pubes, involving a tolerably com-

plete alopecia. Its superior limit extends laterally nearly to the anterior superior spinous process of the ilium, and then across downward towards the thigh, the whole patch being well defined and occupying the whole hypogastric region, and almost the whole iliac region of the left side and extending to the thigh, as will presently appear.

Quite separated from this area and situated upon the left flank, between the crest of the ilium and the twelfth rib, is another pigmented space of oval shape, 8.9 ctm. long by 5 ctm. wide, running obliquely, with small, lighter colored spots scattered over it, and in which, upon closer examination, minute blood-vessels may be observed. Beginning over the fourth lumbar vertebra is a pigmented mottled band, 3.75 ctm. wide, almost exactly limited towards the right by the median line posteriorly, but running horizontally toward the left for a short distance, then turning downward over the anterior lateral surface of the buttock, and widening, runs down the thigh, where its course will be again referred to.

Thus far the patches have presented a mottled aspect, the degree of brownish pigmentation, however, being only slight, while of the whitish areas only the large scar-like patch offers striking contrast. From the abdomen the discoloration, though altered in character, extends to the inner and anterior surface of the thigh, sparing the penis and vicinity, and continuing downward as it approaches the knee, falls away towards the posterior surface, leaving the integument of the knee-joint free anteriorly and laterally, but involving the popliteal space, and finally disappearing imperceptibly half way down the calf. That portion extending from the buttock runs down the external aspect of the thigh, and when near the knee-joint also falls away posteriorly and becomes merged with the morbid area in the popliteal space. The posterior surface of the thigh is not at all involved, except inferiorly. Upon the anterior crural surface, nearly parallel with the course of the sartorius muscle, is a band of perfectly normal skin three centimetres in diameter, completely separating the two morbid areas anteriorly. The skin of the rest of the extremity is unaffected. The coloration of the altered skin of the thigh differs from that of the

trunk, in being without the brownish pigmentation. Though darker than that of the normal skin, it is not at all intense, and suggests the appearance of a fading erythema, or that livid condition seen when the skin is cold. There are here none of the white maculæ so plentiful upon the trunk.

Under the skin of the entire affected surface the large and tortuous subcutaneous veins, contrasting with the normal condition and resembling the appearance of those veins when the deep venous circulation is obstructed, or as seen in the breasts of nursing women, may be recognized.

The hairs are not completely wanting from these areas, but are markedly diminished in number, especially where the morbid changes are most pronounced. At no point is the epidermis wrinkled or contracted, nor is there the slightest desquamation visible. To the touch there is noticeable an unnatural smoothness, due to the extensive disappearance of hairs and to the follicular atrophy, as well as to the obliteration of the natural lines of the skin.

Upon pushing up folds of the affected integument a marked atrophy is immediately noticeable, the folds included by the fingers being from one-third to one-half the thickness of corresponding portions of healthy tissue. This thinning is universal over the morbid area and is uniform, there being no difference between the pigmented and colorless patches in this respect. The contrast is especially striking upon comparing the healthy strip of skin running down the anterior portion of the thigh with that upon either side of it. It is undoubtedly to this thinning that the appearance of the subcutaneous veins is due. There is no difficulty in picking up folds of the atrophied tissue. which seems to be most atrophied in its subcutaneous portion, though the corium is also extensively implicated. The skin is soft and pliant, but not gliding when picked up as readily as normally, and it is unquestionably tighter than usual, as is especially noticeable upon the abdomen and the inner surface of the thigh. This is not due to infiltration, which, from the patient's account, has never been present. There is no approach to the hard, fibrous characters of ordinary cicatricial tissue. At the borders of the patches the transition from the morbid to the healthy condition is rapid, but not abrupt.

It has been seven years since the thigh became implicated, and five years since he noticed that the right thigh was very perceptibly larger than the left one. Lately, he thinks, the difference has become greater. Measurement around the thighs and legs gives the following results; viz:

Right thigh at perineal level	54	centimetres.
Left " " " "	51	"
Right " " middle	52	"
Left " " "	45.8	"
Right " ten centimetres above patella	40.7	"
Left " " " " "	37	"
Right calf	34.4	"
Left "	33.2	"

He has always been able to engage in all kinds of active exercise, and has never suffered any inconvenience in walking. He fancies, however, that his left extremity is slightly weaker than the right one, although his gait shows absolutely no inequality. It is most probable that there is no muscular wasting, and that the atrophy, which is quite noticeable, is solely cutaneous and subcutaneous, since he has always been able to attend to his duties—those of ordinary labor—and only applied for relief in consequence of the difference in the size of his thighs and the apprehension that the wasting would increase "until his leg dropped off." He suffers from pain of a peculiar aching character in the left thigh, and there is also itching of the affected surface. Sensation is apparently normal. He easily detects the separated points of the dressing forceps upon morbid equally well as upon normal parts, and he is normally susceptible to pain. The surface temperature appears likewise unaltered. Four or five years ago he fell from a tree and hurt his breast. As well as he can recollect, he never hurt his back nor suffered from zoster. Four years ago he had a sore upon his penis, which healed without giving rise to any consecutive trouble. He seems now to be quite free from syphilis.

Further observation of this patient was prevented by his failing to return after two or three visits.

There was here, then, an instance of idiopathic atrophy of the skin, dating probably from earliest childhood, certainly some eight years back. The cicatriform patch upon the abdo

men was evidently the starting point of the disease, as it was the most advanced in the morbid action, while it was equally evident that the crural atrophy was the most recent, and tended in time to assume the more advanced characters. It likewise appeared that the parts primarily involved were the subcutaneous tissue, and then the deeper layer of the corium, as seen upon the thigh; the superficial layer of the corium was next involved, as evidenced in the little dilated vessels upon the trunk, and finally the rete mucosum, as shown in the pigmentary changes upon the abdomen and back. The atrophy had not yet reached the more superficial epidermis, which remained over the affected parts smooth and perfect. No other portions of the body were implicated.

As it was manifest that the course of the disease in this case was progressive, it is naturally impossible to conjecture what will be its termination. While it was easily determined that the essential condition was one of atrophy, it was more difficult to assign it to a proper nosological position, the difficulty being due principally to the rarity of the affection and the consequent poverty of our literature upon the subject. It differed from "diffused idiopathic atrophy of the skin," as described by Kaposi (Hebra and Kaposi, "Skin Diseases," New Sydenham Society's translation, Volume III, page 252) in the absence of more than the slightest contraction, and in the entire absence of wrinkling of the skin and desquamation, indicating the subcutaneous cellular tissue and deep tissue of the skin as the starting point of the disease, and not the papillary layer and epidermis as in xeroderma.* Of the two forms of xeroderma described, the first is more unlike the condition of my patient; the second form, which is, however, hardly more than referred to by Kaposi as existing, is more like it, though still possessing the character of wrinkling and peeling of the epidermis as such prominent symptoms that it would, obviously, be improper to apply the term xeroderma to the disease in question.

The scar-like appearance of the abdominal patch might suggest a resemblance to the atrophic stage of morphœa (Wilson,

* This should not be confounded with the xeroderma of English authors, which is a mild form of icthyosis.

Duhring), or of scleroderma, of which latter affection many authorities consider morphœa to be a form. The absence of infiltration or induration, past or present, together with the concomitant symptoms indicating an earlier and less advanced stage, make it clear that the changes observed in my patient were of a simple atrophic nature, and quite devoid of infiltration throughout. The distribution of the atrophy would also tend to distinguish the malady from morphœa, as well as from "partial idiopathic atrophy of the skin" (Hebra and Kaposl), consisting of small streaks and scattered maculæ of atrophied skin, since the present disease was strictly and exactly limited to one side of the body and was quite diffused in extent. This limitation corresponded so exactly with the median line, both anteriorly and posteriorly, that it is certainly difficult to resist attributing the disorder to the influence of the spinal nerves. The unilateral nature of the malady will also recall the condition known as "hemiatrophia facialis," consisting in a circumscribed, total, fixed or progressive atrophy of the skin (or mucous membrane), muscles and bones (even the teeth), with complete integrity of the remainder of the body, and with normal sensibility and motility of the affected parts," (Wagner, "General Pathology," American translation, page 92).

It is probable that, although greatly differing in degree, these several processes all bear a certain relationship to each other, and are due to related nutritive disturbances. Under what influence these disorders prevail is a question of immense interest, physiologically, as bearing upon the whole problem of the influence of the nervous system upon nutrition, and whether dependent upon the vaso-motor system, as seems most unlikely, or upon those trophic nerves, whose existence, though still undemonstrated, is declared to be a physiological necessity by many observers, or, in whatever way connected with the nervous tract, is a theme not unlikely, in the present uncertainty of the subject, to be profitably followed in the present article.

ECLECTIC DEPARTMENT.

"Carpere et colligere."

ART. I.—*Congenital Occlusion and Dilatation of Lymph Channels.* By SAMUEL C. BUSEY, M. D., Washington, D. C., Professor of the Theory and Practice of Medicine, Medical Department of the University of Georgetown; one of the Physicians to the Children's Hospital; and Physician to the Louise Home. (With numerous wood engravings.)

(Continued from page 515 November No.)

The group of cases numbered from 49 to 66 (both inclusive) present a variety of morbid conditions and afford opportunity for a careful study of several of the phenomena present in my case (No. 1). The nipple-shaped bodies, which were located upon the anterior and inner aspect of the leg (see figure 1), were not unlike in appearance to similarly described protuberances found in the cases of Fetzer and Roberts. In the latter cases, however, the bodies were lymph sacs in direct communication with dilated lymph vessels. In my case the tumors were mainly composed of connective tissue, in the centre of which was a sinus filled with blood. During the life of the child it was manifest that they contained a fluid, for they were partially depressible and were believed to communicate with each other, though no communication could be discovered with the enlarged vein on the outer aspect of the limb. The minute bluish-colored puncta about the apices of these bodies were the terminal ends of venous radicles, and their supply of blood was derived through branches from the enlarged vein, which also sent branches to the nævus enclosing the group of vesicles located on the outer aspect of the limb. The connective tissue hyperplasia was due to venous stasis. During the progress of the case reported by Friedberg (48), a nævus developed upon the dorsum of the left hand and blood vesicles formed upon the left arm. It may be that these bodies were in the beginning blood vesicles, and failing to rupture, a new growth of connective tissue was set up, or, perhaps, they were hypertrophied papillæ, similar in structure to the prominences described in the following case:

Case LXVII.*—The patient was affected by a chronic swelling with induration and cutaneous hypertrophy of the scrotum, of the inguinal regions, and of the two thighs as far as below the knees. The thickened skin was covered here and there with rounded prominences firm to the touch, sessile, but little vascular. One variety was manifestly due to the hypertrophy of the papillæ, and the other enclosed ampullar dilatations of the lymphatic vessels. From the latter, when excoriated or pricked, oozed in variable quantities a lemon-colored liquid, slightly viscid, transparent, like a weak solution of gum-water. In the left inguinal fold there were two soft prominences, violet-colored, fluctuating, and covered with a crust, on the removal of which there escaped a quantity of fluid similar to that above described. The patient had frequently recurring inflammatory attacks, which always caused an augmentation of the affected parts, which progressive increase always proceeded from above downwards.

M. Verneuil rejected the hypothesis of elephantiasis arabum, and insisted that it was a special variety of hypertrophy which was connected with a dilatation of the superficial lymphatic vessels.

In the discussion which took place Demarquay admitted the dilatation of the lymph vessels, but insisted that the hypertrophy was elephantiatic because of the extent of tissue involved, the small quantity of fluid discharged, and the absence of a jet, which, he erroneously maintained, is the invariable manner of escape of the fluid from a varix of the superficial lymphatic network. In this view M. Trélat coïncided, and held, furthermore, that the dilatation of the deep network of lymph vessels was not established, for in all such cases there was found "a circumscribed tumor of greater or less extent, without alteration of the skin," which might be mistaken for a hernia or a lipoma. The extent of the hypertrophy, induration of the tissues and papillary growths, M. Trélat's assertion to the contrary notwithstanding, do not antagonize the hypothesis of M. Verneuil, for in a number of cases previously cited similar

* M. Verneuil, Bull. d. la Société Imperiale de Chirurgie de Paris, 2d series, volume 8, p. 312, 1868. Meeting, July 17, 1867. Non-congenital.

morbid conditions were manifestly associated with dilatation and occlusion of lymph channels. M. Panas had seen two cases of dilatation of the superficial lymphatic network of the scrotum, but neither had anything analogous to the case of M. Verneuil. In both of his cases the fluid was evacuated by puncture and escaped with a jet. In one case the lymphatic dilatation followed a balanitis. The essential question in dispute related to the priority of the conditions—whether the elephantiasis or the disease of the lymphatics was the primary condition. In cases like this, in which "the affection began without known cause, by violent pains and inflammatory swelling," the usual course of the acquired forms, it is not easy to settle the priority of conditions, for usually, when unaccompanied with a discharge, the affection is not observed until pain and swelling are present. In those cases in which discharge occurs prior to the onset of the symptoms which are so markedly present in elephantiatic developments, the question of priority is settled in favor of the primary affection of the lymph-vascular system, and in such cases, especially of the acquired forms, the subsequent progress does not differ materially from those cases where the first observable phenomena are characterized by pain and inflammatory swelling, such as occurs in elephantiasis arabum, which it is claimed produces stenosis and obliteration of lymph vessels, and consequently dilatation of vessels, stasis of lymph, induration and hypertrophy of the tissues. It can not, however, be denied that inflammatory processes, either erysipelatous or elephantoid, do constitute the beginning of many of the cases of hypertrophic development, which are characterized by all the phenomena which I have ascribed to occlusion and dilatation of lymph channels, and consequent stasis of lymph. But this fact does not antagonize my view, for it is admitted that such changes as result from the inflammatory processes necessarily cause lymphangiectasis, and the argument relates to the effects, not the causes of the stasis of lymph. I have previously referred to the suggestion that the congenital cases of ectasia, stenosis, and obliteration of lymph channels may have been caused by inflammatory conditions taking place during intra-uterine life, and am willing to accept this hypothesis as a probable explana-

tion, but the numerous cases of congenital defect of formation of portions of the lymphatic system, accompanied with hypertrophic enlargements, will not admit of its universal application. The one essential condition is interruption to the current and detention of the lymph, it matters not whether it be caused by devastated glands, absence of valves, absence of anastomotic connection between the superficial and deep-seated system of vessels, or other congenital or acquired conditions.

Of the previously cited cases, only in Cases 1, 9, 65, 66, and 67 have the nipple-shaped bodies been observed. In the cases of Fetzer and Roberts and my own (No. 1) the protuberances seem to have been similar in form, but in the latter they differed in structure from those in the former two cases. In case 9 they are described as dense, hard, fibrous tubercles, like those seen in tubercular leprosy, studding here and there the rugose, dense, and hardened skin. In Case 67 there were two varieties of prominences—one hypertrophied papillæ, the other ampullar dilatation of lymphatic vessels. Thus it appears that these prominences present themselves in four distinct varieties—as fibroma, as seen in Case 9; as hypertrophied papillæ, as in Verneuil's case; as vascular cavernous growths, to which class the bodies in Case 1 belong, and as ampullar dilatations of lymphatic vessels, as presented in Cases 65, 66, and 67. Any two or more of these varieties may coëxist in the same subject. In Smith's case (No. 9) the tubercular fibroma sprung from a densely hardened and thickened skin, occupied with a spongy, erectile, venous, cavernous tissue, and in Case 1 the bodies consisted of connective tissue and blood vessels resting upon a spongy vascular tissue. In both cases (1 and 9) the bodies were found in immediate connection with phlebectasis and stasis of venous blood, and consisted in Case 9 wholly, and in Case 1 mainly, of newly-formed connective tissue—a verification of the relation of stasis of venous blood to connective tissue hyperplasia. In Case 65 there were a number of these wart-like tumors, varying in size from that of a male to that of a female nipple, which could be pressed into the abdominal wall, but rose again upon the removal of the pressure. Fetzer removed one of these bodies and passed a probe through the opening to the

depth of one inch. From this opening a large quantity of milky fluid escaped in a stream. The communication between these ampullar dilatations and the lymph-cavernous structure beneath was thus demonstrated to be an open and direct channel, but in Robert's case they were not intercommunicating, but depressible, and seemed to communicate with a deeply situated reservoir of anastomosing channels. The thickened skin and subcutaneous tissue were traversed by short channels or lacunæ, varying from the size of a hair to that of a crow's quill, which seemed to communicate freely with each other by small, smooth orifices. The nipple-shaped bodies and the vesicles evidently "constituted the surface boundaries of the more superficial lacunæ." Analogous elevations will be considered hereafter.

Vesicular formations of cutaneous vesicles, variously described by different writers as ampullæ, bladder-like sacs, or cystic degenerations of the terminal ends of lymph channels, are phenomena very constantly associated with hypertrophies, in which the lymphatic system is mainly involved. These dilatations of the lymph plexuses of origin, as they are denominated by Binet and Phillipe Aime-David, are more or less prominent, hemispherical, usually transparent, not always depressible, vary in size, in the beginning not often exceeding the size of a pin's head or a lentil, and enlarging at a more advanced period, but not often projecting more than a line and a half above the cutaneous surface. The larger the vesicles, the more markedly ampullar, forming sacs with constricted necks. They often rupture spontaneously, and are always easily perforated with a pointed instrument, discharging a slightly alkaline, viscid fluid, usually having a milky color, and varying in quantity, sometimes escaping in a continuous stream, at other times drop by drop, or in a jet. The quantity discharged may be increased by the erect posture, by movements of the neighboring muscles, or by pressure along the course of the connecting lymphatic vessels. When the body is placed in a horizontal position they usually diminish in size or fullness, and if ruptured cease discharging. The fluid evacuated stiffens on cooling, coägulates on exposure to the air, and is, chemically and microscopically, analogous to

lymph. Cruveilhier* encountered pus several times in ampullar lymphatic varices, and others have occasionally found a fluid more or less mixed with blood and other extraneous matters. When depressible they retake their form upon removal of the pressure. These ampullar dilatations of the terminal extremities of the lymphatic capillaries, or more properly of the lymph spaces, are usually found in groups of closely aggregated vesicles, though not observing, as maintained by several observers, any definite order of arrangement, and have a predilection for localities rich in the superficial plexuses and where the trunkal vessels are more developed and so disposed as to suffer distention from accumulation of lymph, such as the upper anterior and posterior surfaces of the thigh, malleolar regions, anterior abdominal walls, scrotum, and prepuce. When at their most advanced development (Binet), they allow the lymph to flow from one to another, and are always associated with dilatation of connecting subcutaneous vessels, which may be cylindrical in form, feeling like hard, knotted, flexible, mobile cord, or moniliform—seeming to be constituted of a series of little bladders placed one following the other, or they may communicate with a lymph-cavernous structure lying beneath. When the vesicular formations are covered with the cutis they may develop to the size of a male or female nipple, or even larger. When beneath the skin, involving the subcutaneous vessels only, they are usually much larger and feel like rounded tumors, more or less voluminous, but are not adherent to the skin. The movable cyst-like subcutaneous body which was located upon the inner surface of the knee-joint in case 1, and which disappeared spontaneously during the first month of the child's life, was, perhaps, an illustration of this latter variety of ampullar dilatation. In Paterson's case (No. 57), a cyst-like protuberance formed during the lifetime of the infant, which proved on examination to be a "conglobate" formation of varicose lymphatic channels. In the cases of Amussat, Drinkard, and Fetzer (60, 61, and 63), the tumors, mistaken for herniæ, consisted of a congeries of dilated and distended lymph vessels, so interwoven as to convey the sensation of sacs.

Demarquay's case (50) was characterized by a series of little

* Traité d'Anat. Patholog. Gen. Paris, 1852, T. II., p. 823.

depressible vesicles grouped around each other, which developed slowly and spontaneously, were enlarged when walking and diminished with rest. Attention was first awakened by the discharge of lymph, and subsequently the flow was increased by pressure above and below the rupture. The fluid collected by Lebert separated on cooling into a clear fluid and a yellowish clot. Lymph cells and red blood corpuscles were held in suspension. Quevenne's analysis showed marked similarity to blood. The serum resembled milk, and contained sugar. The nature of the discharged fluid and the direct continuity of the vesicles being thus established, the succession of the morbid phenomena become exceedingly interesting and instructive. The lymphorrhagia commenced during active, and perhaps violent exercise, when the accumulation of lymph became excessive, consequent upon active muscular movements and stasis occasioned by occluded vessels or impermeable glands. Valvular insufficiency existed, either as a congenital defect of formation, or resulted from excessive vascular distention, and a reflux current ensued. The walls of the vessels were gradually thinned, the ampullar dilatations developed slowly and gradually, and rupture followed consequent upon the persistent passive accumulation. Subsequent to these phenomena tumefaction, hypertrophic enlargement of the neighboring soft parts, took place. Thus the histogenic relation of lymph stasis becomes an observed phenomenon.

No less remarkable, and even more instructive, is the case of Thilesen (No. 52). A boy aged nineteen had from infancy a perfectly smooth, painless tumor of the skin, sharply defined above by Poupart's ligament and extending downwards towards the knee. After a time the skin, especially upon the anterior and inner aspect of the thigh, towards the scrotum—a region rich in lymphatic networks and anastomoses—thinned in places, presenting small, shining, slightly elevated spots, similar probably to the cicatricial spots observed in my own case. These spots, when ruptured either spontaneously or by violent effort, discharged a yellowish-white, opalescent, coägulable fluid, which sometimes escaped in jets. Subsequently the enlargement increased and extended downwards, involving the leg and foot,

and many of the former thinned skinned shining spots developed into transparent vesicles, distended with fluid, which on microscopic examination exhibited the usual characteristics of lymph. Similar-thinned skinned spots formed upon the foot, especially upon the plantar surface and between the toes, and numerous vesicular projections formed upon the other parts of the limb, especially upon the inner surface of the thigh, varying in size, the largest not exceeding one and a half lines in height, and looking like shining spots in the hypertrophied integument. They were broader at their apices than at their bases, depressible, and refilling with the recurrent fluid, and could be directly traced into the superficial vessels, some of which were dilated to the size of a crow's quill. Beneath the thickened, firm, compact integument covering the inner surface of the thigh, in the region where the ampullar varices were most abundant, several deep-seated, hard cords could be distinguished. No thinned spots or vesicles appeared upon the leg or dorsum of the foot, though the integument was thickened over the entire surface of the hypertrophied parts. The lymphatic varices, either in the form of shining spots or distinct and elevated vesicles, were only found in regions of the thigh where finely meshed lymphatic networks are distributed through the integument, and on the plantar surface and sides (Thilesen) of the toes, where the richest lymph networks of the lower extremity are found. The hypertrophy of the integument developed *pari passu* with the degree and extent of the lymph stasis, and was most marked in those localities where the evidences of the accumulation of the fluid were most manifest.

The slow and spontaneous development of the wart-like tumors in M. Fetzer's case (65), the effacement of the prominences by pressure, their locality in a region rich in plexuses, the reflux current from one to another, their grouping near together, their thin integumental covering, the easy introduction of a probe to the right or left, and the chemical or microscopical analogy of the fluid with "milk," establish the nature of the lesion, the connection of the varices of the superficial integumental plexuses with ectasia of the deeper-seated vessels, and points (Binet) to congenital defect of the terminal extremi-

ties of lymphatic channels. It may be that the inguinal tumors, mistaken, as in Amussat's case (60), for herniæ, were ampullar dilatations of lymphatic vessels; or that the pressure of the truss occluded certain vessels, thus developing a congenital defect in the structure of the superficial plexuses. The suggestion of Aime-David, that the lesion resulted from the pressure of the stays upon the abdominal parietes, is hardly tenable in view of the anatomical connection of the superficial lymphatics of the abdominal walls with the inguinal glands.

Lymphangiectasiæ assume a variety of forms. Lebert* divides varices of the lymphatics into three forms: 1st. Groups of closely aggregated vesicles, varying in size from a pin's head to a lentil; 2d. More voluminous ampullæ connecting directly with neighboring vessels undergoing cylindrical dilatation; and 3d. Varices of regions of vessels forming a mass of varices. Cruveilhier† divides them into two varieties—the ampullar and cylindrical or non-circumscribed varices. This division, suggests Binet, is only applicable to the varices of the vessels of the lower extremities, and are analogous to the forms of venous varicosities, though less frequent—their infrequency being due to the absence of any propelling organ, the greater resistance of the vascular walls to the lateral pressure of the fluid, to the resistance offered by the valves to a reflex current, and to the static force of the superimposed column of fluid. Aime-David makes two divisions—the traumatic and spontaneous. The latter being exclusively confined to regions rich in the distribution of vessels and plexuses.

Among the congenital cases there are illustrations of several varieties. The moniliform, in which the integrity of the valves is preserved, giving to the vessel a knotted, rosary-like form, as if constituted of a series of bladders placed one by the side of the other. When exaggerated the vessel becomes cylindrical, which involves valvular insufficiency. This form may be limited to a part, or to a single vessel, or may involve a number of neighboring vessels, presenting the character of sac-like tumors,

* Traité d'Anatomie Pathologique Générale et Spéciale, Paris, 1857, T. I., p. 548.

† Traité d'Anatomie Pathologique, T. I., p. 823, 1853.

or may extend to the vessels of an entire limb, and, as in Amussat's case and the case of the new-born calf (59), an extensive region of internal vessels may be implicated.

The cavernous dilatation is but an exaggeration of the cystoid form, but may find its origin in an expansion of lymph capillaries; in either case the size of the caverns depends upon the coälescence of smaller cysts or expanded capillaries, through atrophy of the intervening septa. The superficial ampullæ and small cysts found in the parenchyma of the diseased part are, I think, formed in congenital cases in like manner, and are usually the dilatation of the lymph canaliculi of Recklinghausen, assuming the cystoid form when situated in the parenchyma, and the ampullar when bulging from the surface. The cavernous tumor may result from the continuous coälescence of caverns and cysts by continual atrophy of intervening walls, and the entire parenchyma of a part may be transformed into a cavernous trabecular tissue by extension of the lymph stasis, involving the entire system of lymph canaliculi. When the accumulation is confined or extends to the canaliculi of the integument, gradual thinning of the epidermis takes place in consequence of the continuous presence and constant oscillation of the accumulated fluid, eventuating in the formation of vesicles projecting above the surface. The lymph canalicular system is without valves, and free intercommunication is preserved through the (protoplasmic) processes (of the branched cells of Klein). Ectasia might thus ensue, either from stasis resulting from occlusion of neighboring trunks or from impermeable glands, or from the constant oscillation of the fluid due to the congenital defect or absence of valves in the capillaries. Weber says the cystoid dilatations have been observed upon the thoracic duct, and Lebert refers to ampullar dilatations of trunkal vessels. Such is not improbable, thus presenting an aneurismal form, but no such instance exists among the congenital cases.

The ampullar or vesicular dilatations may find their cause in ectasia of the terminal ends of the central lymph capillary of the papillæ of the skin. This mode of origin occurs quite frequently among the acquired cases, and is undoubtedly the

mode of formation of the vesicles usually present in elephantiasis arabum, but as it involves an inflammatory process which is absent in the congenital cases, with perhaps the exception of Demarquay's case (50), it is not probable that the vesicles in any of these cases are the dilated lymph capillaries of the cutaneous papillæ.

The lymphatics of the skin* consist of "definite canals" with walls, and spaces "which are the interstices in the tissue of the skin." The lymph vessels of the subcutaneous cellular tissue anastomose very freely, and running towards the corium form two networks, one situated below the outer, and the other beneath the lower capillary blood vascular plexus. These lymphatic networks anastomose less freely than the subcutaneous system of vessels. The interstices of the corium are filled with a serous fluid, and in œdematous conditions "are for the most part the seat of the effusion." The communication of these serous interstices or lymph spaces with the lymphatic vessels proper has not been demonstrated. Neumann maintains that the lymph capillary systems of the skin are closed canals without stomata, unconnected with the mesh spaces and that the inner plexus is abundantly distributed to the hair and sebaceous follicles, to the fat tissue, sweat glands, and throughout the connective tissue. The lymph and blood capillaries are independent of each other, yet their anatomical, and perhaps histological, relation is worthy of notice, especially as, in œdematous conditions of the skin, this relation appears more immediate and direct. The lymphatics are accompanied by one or two blood capillaries, which lie close to their walls, often encroaching upon the cavities of the lymph capillaries. In man the blood capillaries, like the larger vessels, "are surrounded by parallel connective-tissue fibres, between which and the walls lie the perivascular lymph spaces. Klein† claims to have demonstrated the open continuity of the peribronchial lymph spaces with the lumen of the bronchial tubes, and it is not improbable that further research will establish a similar anatomical relation of perivascular lymphatics with the lumen of the

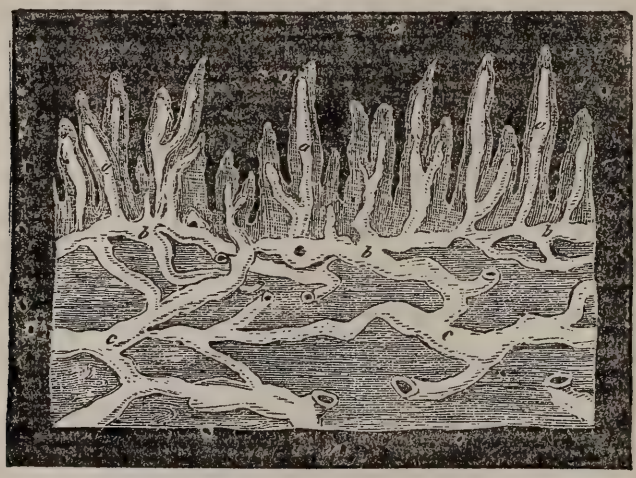
* Biesiadecki, Stricker's Manual, Amer. Trans., p. 542.

† Anatomy of the Lymphatics of the lungs.

blood vessels. Küss locates the base of the lymphatic cone at the epithelia.

Biesiadecki denies that the papillæ of the skin in a normal condition are supplied with lymph vessels. Teichmann, however, holds the opposite view, but admits that the central vessels of the papillæ never reach entirely to the apex, sometimes forming only a slight projection into their bases, and at other places extending half way the height of the papillæ, but that every papilla is not provided with a central lymph vessel. When found they are derived from the outer network. In the skin of an elephantiatic leg he found, with few exceptions, the papillæ supplied with lymph vessels, extending generally from two-thirds to three-fourths their length, greatly enlarged, and usually dividing near the bases of the papillæ into two vessels which emptied into the superficial network. The accompanying figure (37) from Teichmann* illustrates these conditions.

FIGURE 37.



"Perpendicular section through the integument of the sole of a foot affected by elephantiasis; *aa*, the cul-de-sac-like starting-point of the lymph vessels in the enlarged papillæ; *b*, vessels of external layer; *c*, vessels of internal layer. The vessels of the internal layer are collapsed; their dimensions are not therefore corresponding to their width."

Odenius,† in a case of lymphorrhagic pachydermia, in which

* Das Saugadersystem, p. 62, Leipzig, 1841.

† Deutsche Klinik, 1874, p. 385.

the vesicular formations were confined to the inner aspect of the left thigh, about six inches above the knee, found distinctly marked open ducts leading through the bases of the papillæ into the superficial lymph network, and beneath the surface of the cutis he found "wide, canal-like caverns or cavities," from which branches extended upward towards the papillæ and downwards into the deeper tissues of the skin. The arrangement of the lymph tracks differed from that described by Teichmann, in that a majority of the canals which ran deep into the tissues, as well as a portion of those which ran horizontally, presented equal contours and a rounded form, while others possessed an irregular, angular, sinuous boundary, and a lumen irregularly enlarged. The exuded fluid presented all the characteristics of lymph, containing an unusually large proportion of fat. These observations of Teichmann and Odenius, so contradictory of the opinion of Biesiadecki and others, suggest the inquiry whether the central lymph vessel of a papilla, when found, is a newly-formed or a preformed vessel. Odenius found the papillæ, for the most part, which did not participate in the vesicle formation, "small and without any sign of a cavity," even in their bases, but in certain isolated cases he recognized tracks or sinuses extending from the superficial network more or less into the papillæ, which he claims represent the first stage of vesiculation, and he corroborates the supposition that the central lymph vessel of a papilla, when found, is a newly-formed vessel. He insists that the "horizontal canals which pass upward towards the papillæ are mere excavations in the tissues, and not dilated preformed vessels." The lymph spaces acquire a free communication with the lymph vessels proper, and afford efflux to the advancing fluid, which, as the dilatation of the cavity progresses through the papilla, forces its way to the epidermis and collects in a vesicle. In this manner Odenius explains the varying development of a central lymph vessel, sometimes entirely through the centre and terminating in a vesicle, at other places simply presenting a pouch-like projection into the base of a papilla, the varying gradations of development depending upon the duration of the morbid process.

It can not be doubted that the vesicle formations in the case of Odenius, and probably also in the case of Teichmann, were directly connected, through open canals, with the lymph vessels, for the vesicles characterized themselves as true lymphangiectasiæ, but it can not be maintained that all lymphatic vesicle formations are the terminal ampullar dilatations of newly-formed lymph vessels, which have, by gradual and continuous development, penetrated the cutaneous papillæ, or that they bear any anatomical relation whatever to the papillæ. In many cases, perhaps in most, they are true ectasiæ of the serous spaces or the lymphatic radicles of the integument. The cases of Odenius and Teichmann were associated with inflammatory processes, and the vesicles, as in many diseases involving the structure of the skin, were immediately connected with the changes effected by the inflammation.

M. Michel, of Strasburg (Binet), has twice observed papillated and whitened patches, several centimetres in extent, on the internal surface of the thigh, which he considered an exaggeration of the normal condition, but Binet regards such appearances as a "pathological alteration of the lymphatic capillaries." He insists that almost the entire surface of the body is covered by capillaries of extreme tenuity, but that certain localities are richer in plexuses than others, and only in the parts where these plexuses are so abundantly developed are "varices of the plexus" or vesicles to be found.

C. Handfield Jones* has reported three cases of "dilatation of the lymphatic radicles," which presented a plexiform arrangement of freely intercommunicating "vasoid spaces" lying immediately beneath the epidermis, seeming to groove the corium, and disappearing at the localities where the superficial vessels passed into the tissues to unite with the deeper lymphatic vessels. The intercommunication of these sub-epidermal vasoid spaces and the direction of the current of the lymph was demonstrated by the rapidity and continuousness of the discharge from a needle puncture. Jones does not describe any vesicle formations, such as have been usually observed, but suggests that the excessive transudation of lymph found efflux through

* London Lancet, July 31, 1875.

the dilated serous spaces, communicating one with another along a continuous course, and finally emptying into the deeper system of vessels. This form of varix had not been previously described, and may, perhaps, have been an exaggeration of the condition of "wide, canal-like caverns, or cavities," observed by Odenius, but without vesicles. Venous obstruction was present in all of these cases, to which circumstance Jones attributes the peculiarity of the form of the varices, for only through the lymph channels could the œdematous fluid find egress from the tissues.

The cases of "lymph scrotum," more properly cases of pachydermia lymphangiectatica (Rindfleisch), reported by Carter, Manson, Wiedel, and others present vesicle formations "in the form of cavities which have their seat in the uppermost layer of the cutis itself," and project above the surface in vesicles of varying size. All these cases belong to the acquired forms, but to illustrate this variety of lymph varices I have selected the case of the adult Hindoo reported by Carter,* which presents a number of interesting phenomena.

Case LXVIII.—The skin of the scrotum was corrugated, thickened, and studded with numerous tubercles, varying in size from a pin's head to a pea, soft to the touch, and when punctured discharged a chylous fluid, sometimes equaling a pound daily. Sometimes it issued spontaneously from one or more of the tubercles. When it ceased, and occasionally during its continuance the urine became chylous and frequently coägulated. The inguinal glands on both sides were much enlarged (see figure 38), soft, doughy, and diminished under pressure. The tumefaction of these glands seemed to alternate with the appearance of chyle in the urine, and increased two or three hours after a full meal and then subsided. The appearance of chyle in the urine was irregular; when chylous it was either white, reddish-white, or pinkish, with a subsequent deposit of blood corpuscles. It usually coägulated more or less completely, the clot assuming a rose color. The quantity was greatly increased; decomposed rapidly. Sp. grav. 1.017.

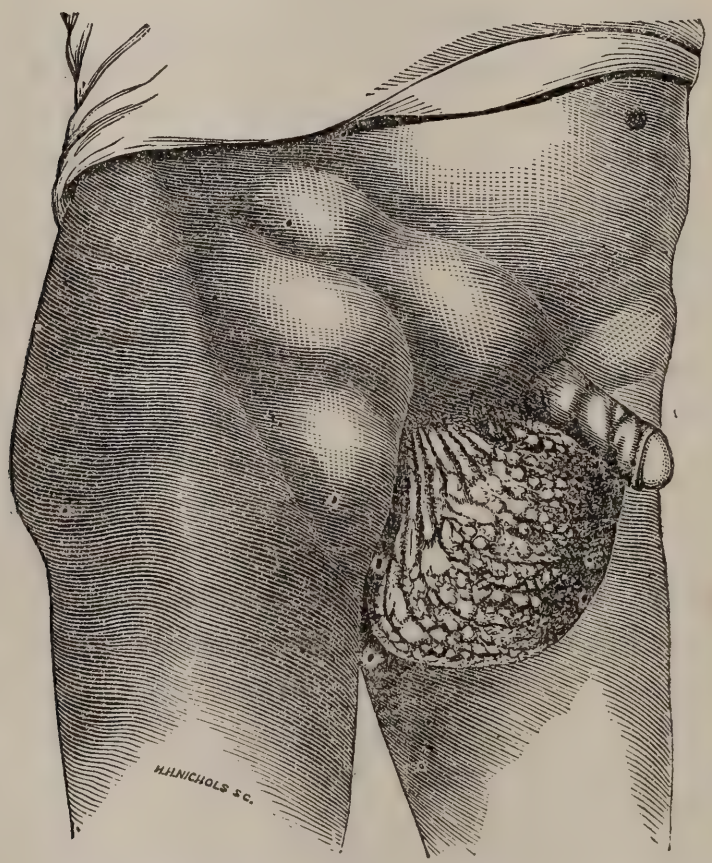
The fluid discharged from the scrotum while flowing assumed

* Medico-Chirurgical Trans., vol. 45, p. 189, 1862.

a red color, coägulated very rapidly, the clot being red and the serum milky. It consisted of a molecular base, granules, red blood corpuscles, some well formed, some granular and starred; corpuscles rather larger than these, with color less decided and margins slightly irregular; others having a mulberry aspect, varying in size and sometimes flattened; lastly, granular corpuscles, 1-2700 of an inch in diameter, and resembling lymph corpuscles. The blood serum was quite clear.

Lymph (chyle?) from the scrotum.

FIGURE 38.



a. Red blood corpuscles 1-4000 to 1-6000 inch in diameter, some granular and starred.

b. Corpuscles rather larger (1-3800 to 1-2666 inch), but like them; color less decided, and margins less irregular; numerous.

c. Numerous nuclei, varying in size (1-3800 to 1-2500 inch); some mulberry shape, some flattened.

d. White blood corpuscles, very few; 1-2700 inch; fibrinous striæ.

As a rule the chyluria appeared with the cessation of the discharge from the scrotal vesicles and alternated with the tumefaction of the inguinal glands. These facts, though insufficient to establish the hypothesis of Carter (see "New Orleans Medical and Surgical Journal," July, 1877), that the fluid was chyle, which by a retrograde movement found its way to the scrotum, inguinal glands, and bladder, do establish the identity of the fluid which collected in the inguinal glands, and which was alternately emitted from the scrotal vesicles and bladder. The three conditions were directly connected, and manifestly due to stasis of lymph. In Carter's case, impediment to the lymph stream was above the superficial inguinal ganglia. He ascribed the enlargement of the glands to increased function, in connection with dilated vessels extending inwards, even as high as the thoracic duct.

The cases of Roberts and Carter (66 and 68) are pathologically identical, and the absolute identity of the discharges with lymph or chyle establish the similarity of the structures and of the morbid processes producing them. The objective phenomena in both cases consisted of obstructed and dilated lymph channels and stasis of lymph, and in each case the lymphorrhagia alternated with the chyluria. It may then (Roberts) be assumed that the condition producing the chylous urine was essentially of the same pathological nature as the disease of the abdominal walls in Roberts' case, and of the scrotum in Carter's case. Roberts suspected from the discovery of the Bilharzia hæmatobia in endemic hæmaturia that chyluria might owe its origin to the presence of parasites in the lymphatic vessels, which supposition has been verified by the more recent discovery, by Lewis, of the filaria in cases of chylous urine, and by Winckel (Case 45, "New Orleans Medical and Surgical Journal"), in a case of chylous ascites. Lewis supposed these parasites penetrated the walls of the lymph channels, thus establishing apertures through which the fluid escaped. "Chylous urine," says Roberts, "prevails mostly in youth and middle age, but no case has been traced to congenital origin." The youngest example Roberts refers to Prout, which occurred in a male infant eighteen months old, in which case a fatty substance

mixed with triple phosphate was discovered "in the urine of a delicate child fed on milk."

The vesicles in cases of pachydermia lymphangiectatica are "partial (Rindfleisch) ampullar dilatations of the superficial subpapillary lymphatic net." The inner surface of these vesicles is always lined with lymphatic endothelium, and the covering is "formed by the epidermis and the papillary layer." Rindfleisch* insists that regions most usually invaded with this affection are the richest in organic muscle, which in the tunica dartos forms "a proper membranous organ." This structural element in this class of cases undergoes "a special hyperplasia and neoplasia," and by contraction compresses "the lymphatic trunks which penetrate the cutis in a straight direction, and connect the superficial with the deep lymphatic net, thus preventing efflux of the lymph and consequent ampullar dilatation of the terminal radicles. A similar effect might also follow simple elasticity of the muscular parenchyma. These pathohistological conditions might stand in an etiological relation to the cutaneous vesicles, but certainly they are insufficient to explain the glandular engorgement and chyluria, and it may be that the hypertrophy of the dartos is an effect rather than the cause of the stasis of lymph. In another of Carter's cases, and in one of Manson's cases of "lymph scrotum," a similar coëxistence of phenomena was present; and in a number of the cases of "lymph scrotum," as in Wiedel's† case of pachydermia lymphangiectatica, the vesicles which studded the skin of the scrotum were directly associated with engorged inguinal glands. These circumstances would lead to the conclusion that the "ampullar dilatations of the superficial subpapillary lymphatic net," which Rindfleisch ascribes to hypertrophy of the organic muscle of the skin, were the remote effects of obstruction to the lymph stream situated anatomically above the inguinal ganglia. In Cases 54, 55, 56, 57, and 58 the vesicle formations were associated with cylindrical or moniliform varicosities of the connected vessels.

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* Text-Book of Pathological Histology, Amer. Translation, p. 313, 1872.

† Inaugural, Abhandlung, Würzburg, 1837.

Among the acquired forms of lymphatic varices there are a number of cases (see the cases of Petters, Stewart, Bryk, Oppolzer, and Rokitansky, "New Orleans Medical and Surgical Journal," September, 1877), in which lymph varices were occasioned by obstructive heart circulation, and a number of other cases in which dilatation and rupture of lymph channels occurred in consequence of impediment to the lymph stream, located at or near the entrance of the thoracic duct into the left subclavian vein; but among the congenital cases, the case of Virchow (59), probably the case of Friedberg (48), and the following case reported by Cholmeley, are the only instances in which the heart circulation bore any causal relation to the lymph varices:

Case LXIX.*—Louisa R., the fourteenth of seventeen children; was, like her brothers and sisters, born at full term, but was deeply cyanosed; her lips and fingers were dark blue, her face livid, and the general surface of the body dark. Respiration was very labored and sighing, and for many weeks it was not supposed that she could live. Suffered for the first four or five years from frequent attacks of dyspnœa, and "inflammation on the chest," but "was always well nourished and fat," and is now (1869) "short, stout, and generally healthy-looking, with a good, bright red color in the cheeks and lips, but is easily affected by colds, and then complains of "want of breath," and a feeling of tightness in the chest; and at such times the complexion assumes a markedly livid tint, respiration becomes somewhat labored and noisy, the extremities cold, and the nails dark blue. No morbid sounds are heard in the lungs. The pulse is normal in frequency, rhythm, volume, and force; "but all over the heart is heard a soft, blowing, systolic murmur, which is loudest at the junction of the second left costal cartilage with the sternum."

During her sixth year a swelling appeared on her right leg and ankle, which gradually extended upwards, though not above the knee, until two years had elapsed; but in the third year, when the patient was between seven and eight, "the swelling

* Cholmeley, Trans. Clin. Soc., London, volume ii, p. 116, 1869.

extended slowly and steadily upwards till the whole limb was implicated," but has not gone above the "inguinal line." The increase in the size of the swelling was always greater towards the evening, and did not affect the foot when a boot was worn or when the child first got up, but was very great in the foot if the boot was not put on. When treated in 1867, by rest in bed with elevation of the foot, graduating bandages from the toes to the groin, and pressure on the femoral artery, "the swelling diminished considerably, but returned rapidly as soon as she was allowed to be about again."

At the date of the report the entire limb was uniformly enlarged, felt "soft, firm and elastic," the lower part being firmer and more tense than the upper; in color and temperature the limb did not differ. The skin was smooth and soft as far downwards as the middle third of the leg; below it was "harsh, rough, dry," and scaly. On the outer aspect of the ankle were a number of "soft, smooth, red flattened papules," not larger than a split pea. On the hypertrophied skin of the great, second, and third toes were "rough, hard elevations, looking much like a half-aborted and dried herpetic eruption," from which occasionally a discharge took place; and over the tendo-Achilles was a "humid patch, from which a milky-looking alkaline fluid dripped," similar in character to the fluid which issued through punctures made into the lower part of the limb, which exhibited under the microscope "broken-up cells, granular matter, some oil globules, blood corpuscles," and coägulated on boiling.

The comparative measurements of the lower extremities were as follows:

	Left.			*Right.*	
At the ankle	8	inches.		$9\frac{3}{4}$	inches.
Mid. leg	9	"		14	"
Below the knee	$9\frac{3}{4}$	"		$14\frac{1}{4}$	"
Above the knee	$10\frac{1}{4}$	"		$16\frac{1}{4}$	"
Upper part of the thigh	15	"		$17\frac{1}{4}$	"

There was no fullness or swelling of any kind detected in the groin or pelvis; nothing abnormal in the condition of the right nympha or labium; never any pain in the limb, nor any injury, accident, or known cause to account for the condition."

The deeply cyanosed condition at birth, which never entirely

disappeared; the frequent attacks of dyspnœa, which were always accompanied with increased lividity of the face and finger nails, and the "blowing, systolic murmur," which was loudest at the junction of the second left costal cartilage with the sternum, which was probably due to some congenital defect; all point to cardiac anomaly, and can not, in view of the clinical histories and post mortem appearances furnished by the cases of Stewart, Rokitansky, and Petters (see "New Orleans Medical and Surgical Journal," September, 1877), be dissociated from a causal connection with the stasis of lymph which first manifested itself near the ankle during the sixth year, and which gradually increased until the entire system of superficial lymph vessels of the limb seem to have become involved. In Virchow's case (59) a thrombus partly lying in the outlet of the external jugular vein so occluded the mouth of the thoracic duct "that nearly all the internal organs were dilated to the utmost by ectatic lymph vessels. The intestines were covered everywhere with broad bead-like canals." In Stewart's case (No. 55, "New Orleans Medical and Surgical Journal,") "the heart was hypertrophied and fatty, the aortic valves much diseased and covered with vegetations; the auriculo-ventricular orifices were dilated and the valves diseased," and the intestinal villi and mesenteric lacteals were engorged with chyle and lymph. In Petters' case, in which there was stenosis of both auriculo-ventricular orifices, and dilatation of the right side of the heart, the lymph glands of the right inguinal region were transformed into cysts, and the mucous surface of the small intestines was covered with lenticular eminences filled with a transparent fluid. In Rokitansky's case (No. 37, "New Orleans Medical and Surgical Journal") a dilated and hypertrophied heart, with mitral insufficiency, was found in connection with dilatation of an extensive area of lymph vessels, stasis of lymph and effusion of lymph and chyle into the pleural and peritoneal cavities. The venous teleangiectasis upon the thorax of Friedberg's patient (48), the nodes upon the left arm, and the venous network upon the anterior thoracic wall were observed at birth. These, together with the dilatation of the cutaneous veins upon the inner side of the left arm, and the eruption which resembled hæmor-

rhagic spots that remained, point to a disturbance of the circulation. The grouping of these evidences about the left arm and left clavicular region suggested to Friedberg the hypothesis that the flow of blood in the "vena cava sinistra" had met with an obstruction which extended its influence over the adjacent portions of the lymphatic and venous systems. Fetzer believed the condition into which his patient sank, and the reddish color of the coägulum of the lymph which exuded from the ruptured vesicles during the existence of this condition, were attributable to the regurgitation of blood into the left innominate vein and its entrance into the thoracic duct, with which he supposed the diseased lymphatic vessels communicated. In Ormerod's case of chylous ascites (No. 40, "New Orleans Medical and Surgical Journal," March, 1877), the left subclavian vein and its afferent vessels were clogged with a light-colored clot, which prevented the flow of the contents of the thoracic duct into the vein, leading to the effusion of chyle into the peritoneal cavity; and in Cayley's case (No. 39, "New Orleans Medical and Surgical Journal," March, 1877,) of rupture of the receptaculum chyli, the thoracic duct was obstructed at its entrance into the left subclavian vein by fibrinous vegetations. These observations establish the influence of the heart circulation on the movement of the chyle and lymph, and illustrate the agency of obstructive cardiac diseases in the production of lymph varices. Independently of the other cases cited, the case of the new-born calf observed by Virchow, in which extensive and remote areæ of lymph varices were discovered, adequately illustrates the causal influence of an impediment to the free exit of the contents of the thoracic duct, produced by a thrombus pendent from the opening of the external jugular vein. With this brief résumé of this important question, which the reader will find more elaborately discussed in the "New Orleans Medical and Surgical Journal" (see Nos. for September and October, 1877), I will proceed with the presentation of other forms of lymph varices.

Case LXX.*—A child, two years old, had from birth a thick

* Virchow, Archiv für Pathol. Anat. und Physiolog. und Klinische Med., volume vii, p. 126. 1874.

tongue, which had greatly increased during the preceding two weeks. The tongue protruded from the mouth in a broad, thick, hard mass, and was closely encircled by the stretched lips. From two punctures made in the under surface a small quantity of blood was evacuated, but a tumor situated below the right inferior maxilla, furnished several tablespoonsful of a lymph-like fluid. Subsequently a portion was removed, measuring one and one-half inch in length, one and three-quarter inch in width, and three-quarters of an inch in thickness. Across the dorsum of this part extended a thick epithelial covering, removable in flakes. A few of the papillæ retained their filiform appearance; the most of them appeared thicker and coarser. Towards the point of the tongue they were as usual, but flattened upon the edges. Upon the posterior under surface lay, in partly bead-like rows, bluish, transparent vesicles, varying from very fine, just visible bodies, to the size of large flax seeds.

FIGURE 39.

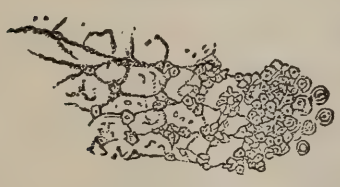
Upon section a pale, peculiarly cavernous tissue appeared, which differed from the appearance of ordinary cavernous tumors by the contents of the inter-trabecular caverns, in which was found a clear, yellowish fluid, here and there somewhat turbid, in other places coägulated into clear, transparent masses The evacuated fluid coägulated upon exposure to the air, and contained albumen.

Upon longitudinal section through one lateral half of the ablated portion the cavernous tissue was found principally in

the middle part corresponding to the region of the transverse muscle, as shown in figure 39.

Upon the top could be distinguished the whitish, tough layer of the mucous membrane and the papillæ; below it a longitudinally striated, very tough, and whitish layer; next, the cavernous mass, and below again a more longitudinally striated layer, which continued beyond the apex. The same result was found upon transverse section, and the cavernous structure appeared in the centre in very coarse meshes, whilst towards the lateral portions it became fine, and towards the periphery the mesh cavities became smaller and smaller in such a manner that bead-like vesicles could be traced up to the papillæ. The cavities were elongated perpendicularly, and varied in size from the smallest, barely visible points, to over one line in their greatest diameter. The width of the trabeculæ varied. Many of the cavities communicated by narrow openings; many, however, appeared closed, and the adjacent vesicles could be seen shining through at the bottom; the trabeculæ and partition walls which bound them were sharply defined, more or less smooth, and pale. See figure 40.

FIGURE 40.

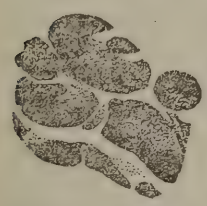


The smooth, regular walls, the bead-like course, the albuminous and fibrinogenous contents, the simultaneous disease of the gland below the inferior maxilla, from which the lymphatic fluid was discharged several times, the relatively rapid development of the large tumor, the complete freedom from pain, and the absence of any considerable hyperæmia, induced Virchow to ascribe the cavernous structure to the passive development of preëxisting lymph vessels, in which an accumulation of fluid had taken place.

"Wherever the mesh cavities contained coägulum it consisted of fibrinous threads united in a net-like manner, in which was enclosed numerous round cells of the size, form, and character of lymph corpuscles. They were slightly nucleated, and contained single or multiple nuclei, which became more distinct by acetic acid." Virchow failed to demonstrate the wall elements of lymph vessels, but occasionally found traces of epithelium.

The connective tissue stroma contained numerous granular formations and cell forms, which were especially abundant in the basic stroma of the papillæ. In the interior of the cavernous layer—as in the peripheral layers—he found the connective tissue corpuscles in close proximity to other stellate cells, containing two or more nuclei, and as the interstitial tissue decreased the stellate bodies grew broader and larger, becoming arranged in rows and finally collecting in dark groups, as shown in figure 41. These observations led him to the conclusion that the cystoid cavities resulted from the progressive development of the connective tissue corpuscles, and that in the above case the lymph vessels and connective-tissue corpuscles were simultaneously involved. These conclusions he subsequently verified by examining the part of the tongue removed by Casper von Seibold, in 1791, and which had been perfectly preserved in alcohol. "The tongue belonged to a girl aged twelve, had been unusually thick at birth, and grown slowly to such a size that it finally protruded beyond the edge of the teeth four and a half inches, was six inches wide, and two-thirds of an inch thick." The removed portion was covered with enlarged papillæ and interspersed throughout its structure with numerous rounded and oblong cavities.

FIGURE 41.



Billroth* concludes from his examinations of several specimens from the excised portions of congenital macrochilia,† that the affection is analogous to macroglossia, and insists that the respective tumor formations occur in two forms essentially different externally; that is, they are either "connective tissue new formations between the muscular fasciculi, or cavernous cystoid degenerations, where the caverns contain a lymphoid fluid—a tumor formation, which, in contradistinction to cavernous blood tumors, can be distinguished as cavernous lymph tumors. Both forms can combine with one another, which may be the more easily comprehended, as both owe their existence to a proliferation of connective tissue cells, whose eventual

* Beiträge zur Pathologische Histologie, p. 215.

† Cases of Wagner and Langenbeck.

further development into fibrous connective tissue, or transformation of their corpuscular elements into a homogeneous fluid, determines the external difference of both forms of tumors."

He maintains that the condition of the tongue in the cases reported by Wagner, O. Weber and Volkmann, was due to the enormous new formation of connective tissue between the muscles. In Langenbeck's cases of macrochilia, the excised portions showed hypertrophic development of connective tissue and considerable enlargement of the glands of the lip, but the congenitally thickened lip had no independent growth. The following case of congenital macrochilia was observed by Billroth in Langenbeck's clinic.

Case LXXI.—C. R., aged fifteen years, was born with a thick upper lip. He often suffered with swelling of the glands of the neck during childhood, without suppuration ever taking place, and several times the upper lip had been inflamed and much swollen, which had subsided, leaving only an increased enlargement of the lip. At the time of the observation (1859), the boy appeared well nourished; the upper lip protruded beyond the lower, and was far beyond its normal size. The buccal mucous membrane turned outward, was corroded, bled easily; color dark-red. The tumor felt tensely elastic, not fluctuating, was not painful, and could not be diminished by pressure.

The excised portion collapsed very much, and showed to the naked eye a distinct cavernous trabecular tissue, and a lymphoid serous fluid could be pressed from the deeper caverns, while coägula were found in the smaller caverns. The trabeculæ were formed in part of connective tissue only, in part also by fibres of the orbicularis oris; the largest cavities were of the size of small peas, the smallest microscopic. Microscopic examination showed that the trabeculæ consisted mostly of inelastic connective tissue fibres, mixed with many elastic fibres; in some of them lay also many striped muscular fibres in larger or smaller microscopic bundles, especially in the periphery; blood-vessels were recognized in many trabeculæ, especially small arteries. A single layer of small spindle-shaped cells surrounded most of the finer trabeculæ in the manner of vascular epithelium.

The serous fluid found in the meshes presented only small cells in a fluid containing albumen and mucin, which were so like lymph corpuscles that they could not be distinguished from them; similar cells were also found in the white coägula of the smallest meshes.

ART. II.—*Excision of the Superior and Inferior Maxillary Nerves from the Same Person—Two Cases. Excision of the Superior Maxillary Nerve—One Case.* By W. W. DAWSON, M. D., Professor of Surgery in the Medical College of Ohio; Surgeon to the Good Shepherd Hospital, Cincinnati, Ohio.

I present to the profession three cases in which I have removed the superior and inferior maxillary nerves. In two of the cases both nerves were removed at intervals of a few months. In the third case but one nerve was offending.

The operations for the removal of these nerves, tunneling the orbit for the superior maxillary and converting the track of the inferior into an almost open canal, may well be regarded as radical surgery. I would that I could affirm that the relief has always been radical, thorough and final. I regret to say that in many of these cases the pain has returned, sometimes after months, in other instances not for years. The removal of the nerve, however, is legitimate if it gives relief from suffering for but a short time. The torture, the anguish, the agony of these sufferers is beyond compass; it can not be measured; it is unlike, because it is more severe than any other kind of pain. Anodynes are comparatively powerless. A woman upon whom the late Professor George C. Blackman operated, took, as I am credibly informed, in one day in the Good Shepherd Hospital, one quart of laudanum before she obtained relief.

One of my patients, Herrman Kauser, sat for weeks, months, years in his chair, day and night; he was almost constantly jerking his head backwards, as if a flame of fire was striking him in the face. He described it as more severe upon some than upon other days, but always hot—ever burning. He suffered for ten years; occasionally for eight years, then the last two years previous to the operation he could hardly be said to

be free from pain at any time, even his short sleepings were disturbed slumbers. The seat of the disease seemed to be in the inferior maxillary. This I removed in April, 1875. Soon after the operation, however, it was manifest that the superior maxillary was also involved. In October of the same year I excised this nerve, since which he has been entirely clear of pain.

The plan of operation was essentially that of Carnochan, trephining the antrum, tunneling the orbit, breaking down the posterior wall of the antrum and dividing the nerve at its exit from the foramen rotundum. It has been thought important to remove the ganglion of Meckel, as it is so intimately connected with the nerve in the spheno-maxillary fossa. When the surgeon for the first time attempts this operation he will find it by no means an easy one, and this step in it, the removal of the ganglion, he will find difficult of accomplishment—as the ganglion is small, and somewhat irregular in its situation, but more especially as at this stage of the proceeding, he will find that he is working in a deep well, the walls and bottom obscured with blood—and insufficiently lighted. He will often have to be satisfied with the reflection that he he has destroyed if he has not removed this centre in the sympathetic system.

My other patient, John Curtis, a large manufacturer of the city, had for a long time been a sufferer with what may justly be called a malignant neuralgia. It seemed to be confined to the region supplied by the superior maxillary. Dr. Charles Kearns, of Covington, some years ago excised the nerve as it left the infra-orbital foramen. This gave relief for several years, but at last the pain returned, and each year grew more and more severe, until at last he was compelled to abandon his business and seek the quiet of his room; here his whole aspect was that of intense agony. Knowing this patient intimately, I recognized the fact that mental excitement, like that consequent upon the worry of business, perceptibly increased his suffering—intensified it. He would lie in bed for hours with his head covered to protect his face from exposure to the slightest draught of air. Oil upon his face, preventing the evaporation consequent upon perspiration, seemed to give him

slight relief. For the few weeks preceding the operation, from one to two grains daily of morphine, hypodermically, gave him some comfort, but by no means freedom from pain.

In operating, after reaching the stump of the nerve left by Dr. Kearns' operation, I traced it up to its exit from the skull and there close up to the under surface of the bone, with a pair of curved scissors, I divided it.

I was not long in recognizing the fact that I had here another case of double ticdouleureux—that the inferior branch of the fifth pair was also involved in the disease.

I removed the superior maxillary on the 7th of November, 1876, and the inferior on the 27th of January, 1877.

The plan which I adopted in the removal of the inferior maxillary nerves was as follows: I made an incision down through the soft parts just in front of the angle, and with a trephine opened the dental canal and divided the nerve. I then dissected down to the exit of the nerve at the mental foramen, detached and divided it, and in the case of Herman Kauser, by traction I pulled the nerve out. I attempted the same with Mr. Curtis' nerve, but could not succeed; its connections were such that they would not yield and I was compelled to make an almost open canal of the whole nerve cavity before I could remove it.

The third case, Thomas J. Drake, aged twenty-four, of Clinton county, Ohio, I operated upon nine days after my first operation upon Mr. Curtis. The neuralgia was confined to the superior maxillary alone. It was severe, so severe in fact that he was unfitted for all occupation. He had suffered for ten years. The relief experienced after the excision of the nerve was, and is up to this time, about seven months, complete. In this case the operation was very tedious, as I encountered a very vascular antrum. This I had not witnessed in my own cases, nor in three others which I had seen performed, one each, by those distinguished surgeons, Professor George C. Blackman, Professor W. H. Mussey, and Professor H. E. Foote. The hæmorrhage was positively fearful. The necrosis following so great violence to bone was insignificant in all the cases. In Mr. Curtis' case along the track of the trephine in the inferior

maxillary bone there was none, the osteitis terminated without throwing off any dead bone whatever.

In operating upon the superior maxillary, I think a curvilinear incision beginning below the inner angle of the eye and terminating upon the malar bone is preferable to the V incision adopted originally by Carnochan.

Are these justifiable operations? One of my patients has been free from pain in the inferior nerve for two years and entirely exempt from suffering since the removal of the superior in October, 1875. Mr. Curtis is attending to business, without a trace of his former suffering. Mr. Drake, the youngest of the trio, was out of his room in a few weeks after the excision, seemingly perfectly well. Suppose the neuralgia should return in all three, they have, let it be remembered, been released for years from positive agony.

When Carnochan suggested and performed the excision of the superior maxillary nerve, it was truly, as was said by the late surgeon Charles Tripler, "the greatest triumph of surgical anatomy."—*Archives Clinical Surgery.*

ART. III.—*The Function of the Uvula and the Prominence Formed by the Azygos Uvulæ Muscles.* By THOMAS F. RUMBOLD, M. D., St. Louis, Mo.

In the spring of 1870 I had a patient whose right nostril was of sufficient calibre to admit my little finger in its whole length. The idea occurred to me at once that this case presented an excellent opportunity for examining the action of the uvula; and as our authorities say of this grape-shaped appendage, that "its use is not clear,"* I determined to take advantage of this opportunity to inspect its motions during mastication, deglutition and vocalization.

I had the patient keep his nostril wide open with a Kramer bi-valve speculum. Through this large nasal passage thus dilated I passed a reflector, reaching to the posterior wall of the pharyngo-nasal cavity (figure 1, R); on the mirror (R) I directed

* Dunglison's Medical Dictionary.

a calcium light, illumining the parts under observation, so that the image was reflected back to my eye very distinctly. In this way I was enabled to inspect the upper or posterior surface of the soft palate, and the prominence or ridge on it that the azygos uvulæ form (figure 2, Az-Pr), the base of the tongue (T), the epiglottis (Ep.), and the contents of the larynx, at the

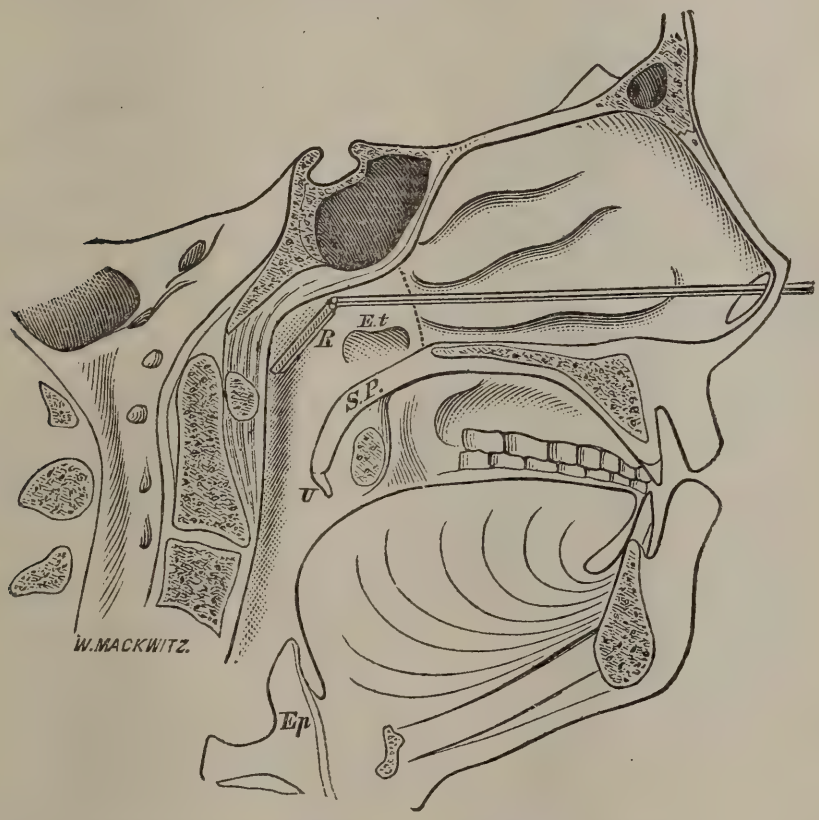


FIG. 1. Antero-posterior section of the head; R. reflector; S. P. soft palate; U. uvula; E. t. mouth of Eustachian tube; Ep. epiglottis.

time of the attempted phonation of the sound "æ" with the mouth closed.

My observations on this patient were continued for a period of five weeks. Subsequently, I made numerous observations of a similar character on six other patients, each of whom had lost the septum nasi, but had perfect soft palates.

From notes that were taken at the time of these inspections —about seventy-five in number—I will state what part, in my judgment, the soft palate, the uvula and the azygos prominence (figure 2, Az-Pr, and figure 3) take in the acts of mastication and deglutition, and what were their positions at the time of

the phonation of such simple sounds, as show enough of their action to demonstrate their apparent function; reserving for the near future the details concerning the position of these three organs as well as that of the base of the tongue and the epiglottis during the phonation of specified sounds.

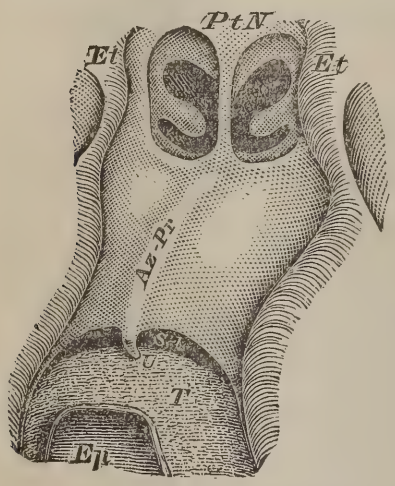


FIG. 2. View of the posterior nasal passages, the posterior surface of the soft palate and base of the tongue; Pt N. posterior nares; E. t. Eustachian tubes; Az-Pr. azygos prominence on the upper surface of the soft palate formed by the azygos uvulæ muscles; S-l. semi-lunar openings formed by the tongue, uvula and soft palate; T. base of tongue; Ep. epiglottis; U. uvula.

Although I know now that the uvula and the azygos prominence (figures 2 and 3) are not required to aid the acts of mastication and deglutition, yet I will give the results of the inspections while these processes were going on, because these results contain points of interest when taken in connection with phonation.

During mastication the whole free border of the soft palate rested on the base of the tongue, reaching within a short distance of the epiglottis. In five of the cases, the uvula was not in sight at any time, and seemed to be doubled under the velum, so as to lie between it and the tongue (figure 4). Two patients had elongated uvulas, which sometimes hung down on the base of the tongue, and frequently touched the epiglottis. The uvula was always contracted; the evidence of this condition was the increased height of the azygos prominence formed by the contracted azygos uvulæ (figure 2, Az-Pr).

During the act of deglutition the soft palate was pushed backward by the alimentary bolus until the posterior wall of the pharynx was reached; the motion was continued in an upward direction until the upper surface of the velum was high enough to cover and close both Eustachian tubes (figure 1, S. P. E. t.) pushing the reflector (R.) upward and forward; then the velum descended, as the alimentary bolus was swallowed, until its lower border touched the base of the tongue.

When I began to make observations, my attention was directed to the uvula alone; but the varying height of the azygos prominence during vocalization (figure 2, Az-Pr.) in this my first patient drew my attention to it, and what I discovered with respect to it was confirmed in the subsequent examination of the other cases, namely, that this prominence, whose existence I had known for some time, though I had never thought of assigning to it any function or use, was of as much if not more importance in vocalization than the uvula itself; so that, while seeking for the function of this grape-shaped appendage, I discovered a new organ, and ascertained its function at the same time.

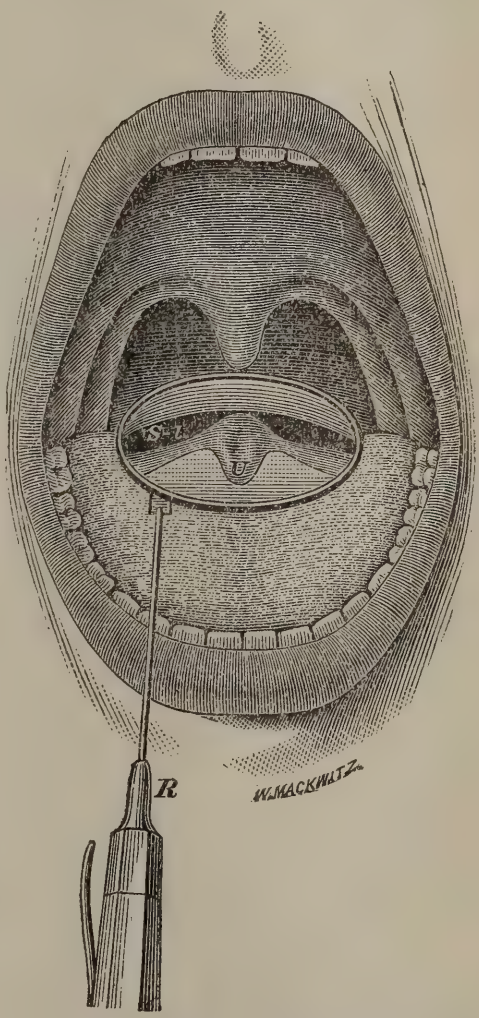


FIG. 3. The image seen on the hinged reflector (R) of the lower edge of the soft palate and the lower or posterior concave surface of the uvula, (U), showing also the higher semi-lunar-shaped openings (S-l) made by the azygos prominence touching the posterior wall of the pharynx.

During the vocalization of sounds that passed through the nose alone, the whole free border of the soft palate rested on the base of the tongue (figure 4), the uvula was not in sight at any time. During the vocalization of sounds that passed through the mouth alone, the soft palate was raised, and about 4‴ of its lower border was pressed against the posterior wall of the pharynx (figure 5).

From repeated inspections made while the velum was in each of these two positions, it appeared that all the sounds were uttered without the aid of either the uvula or the azygos prominence.

The favorable opportunity for observing what assistance is

rendered by the azygos prominence and the uvula is during the phonation of such sounds as are required to pass through the mouth and nose at the same time. While these sounds were uttered, the soft palate was either suspended, so that but a small

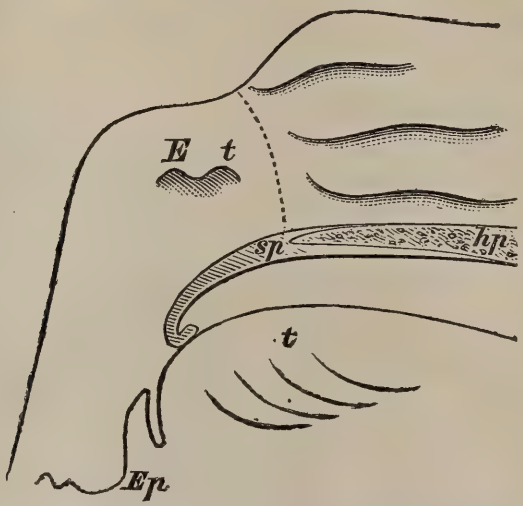


FIG. 4. Antero-posterior section of the hard palate (hp.) and the soft palate (sp.), showing the position of the uvula resting on the base of the tongue (t.); Ep. epiglottis; E. t. mouth of Eustachian tube.

part of its central portion and the uvula rested on the base of the tongue (figure 6), or it was raised to such a height that the azygos prominence touched the posterior wall of the pharynx

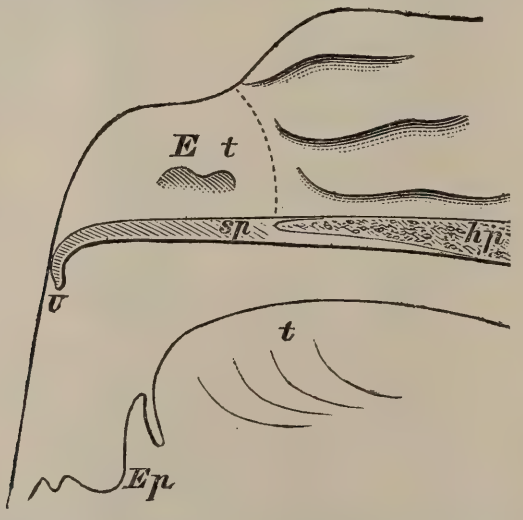


FIG. 5. Antero-posterior section of the hard palate (hp) and the soft palate (sp) showing the position of the velum closing the avenue to the pharyngo-nasal cavity; U, uvula; t. tongue; Ep. epiglottis.

(figure 3). In each situation that the velum occupied, the communication between the fauces and the mouth, and between the fauces and the pharyngo-nasal cavity, was divided into two

equal or nearly equal semi-lunar openings. In the first position named the division was made by the uvula and a small part of the central portion of the velum resting on the base of the tongue (figure 6, S-l), and in the second position the partition was made by the azygos prominence (figure 3, S-l), touching the posterior wall of the pharynx. In one patient I noticed on several occasions that the uvula seemed to be resting on the base of the tongue, while at the same time the azygos prominence was touching the posterior wall of the pharynx.

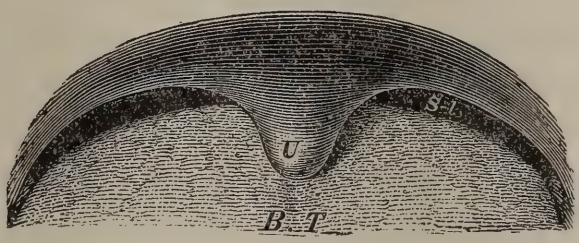


FIG. 6. View of the anterior surface of the soft palate, the uvula and the base of the tongue, showing the lower semi-lunar-shaped openings (S-l.) formed by the uvula (U.) and a part of the central portion of the velum resting on the base of the tongue (B. T.).

The formation of the inferior or posterior surface of the uvula (figure 3, U), as well as the peculiar position in which it hangs from the velum (figures 1 and 2, U), indicates that this surface lies on the base of the tongue frequently, its extremity being directed forward (figure 4). It is evident that this position is the best one in which it could be placed, to prevent the free edge of the soft palate from being shaken by the force of the air from the lungs.

It was observed repeatedly, that the free border of the velum was not at any time suspended in the current of air during vocalization, but was always situated in such positions that it received support, which prevented it from being thrown into vibrations by the force of the air that came from the larynx. To show how the support was given, I will mention again all of the principal positions that this vocal valve was observed to assume. (*a.*) It was either elevated and pressed against the posterior wall of the pharynx (figure 5, U), during the phonation of sounds that passed through the mouth alone; or (*b*) removed from this wall a small distance, but not so far as to

prevent the azygos prominence from touching it (figure 3, seen in the image on the reflector R), for sounds that passed mostly through the mouth and a little through the pharyngo-nasal cavity; or (*c*) lowered to allow the uvula and a small part of the central portion of the velum to rest on the base of the tongue (figure 6), for sounds that passed mostly through the nose and a little through the mouth; or (*d*) still lower, so that its whole free border rested on the base of the tongue (figure 4), for the formation of sounds that passed the nose alone. In a few instances, as have been mentioned, I have seen the second and third positions combined; *i. e.*, the uvula resting on the base of the tongue, and the azygos prominence touching the posterior wall of the pharynx at the same time (figures 6 and 3).

From the effect of these positions of the velum on phonation, it would appear that one of its functions is to act as a valve, by directing the voice from the larynx into the mouth alone for the formation of one kind of tone; into the nose alone for another; and to divide the sound so as to allow it to escape from both of these openings, for still others. It is evident that while the velum is resting wholly on the base of the tongue, or is pressed against the posterior wall of the pharynx, that the liability for its free border to vibrate by the force of the air is reduced to a minimum; but when this valve is in either position that requires it to divide the sound between the mouth and the nose, then, on account of its free edge being suspended and placed immediately in the current of air from the larynx, the liability for it to vibrate is increased to a maximum.

A provision is necessary to prevent these vibrations. This provision, I am led to believe from my observations, is found in the uvula and the azygos prominence formed by the azygos uvulæ muscles. It is located in the centre of this very mobile palate or valve, and by its support in both of the positions that require suspension (figures 3 and 4), prevents it from being shaken by the force of the current of air from the lungs. There can be no doubt, that if there were no uvula and azygos prominence to prevent this thin edge of suspended flesh from vibrating, it would be shaken to such a degree, as to impart a tremu-

lousness to the tone of all sounds, forcibly uttered, that pass through the mouth and nose at the same time.

The following questions have been asked frequently:

"1. If the uvula is required to prevent the free border of the velum from vibrating during phonation, will not its loss impair the voice?

"2. How do you account for the improvement of the voice in many instances after its removal?"

The excision of the uvula can affect those sounds only which are formed by its assistance, and not then even, if they are pronounced with the usual strength of voice, because the contact of the central portion of the velum on the base of the tongue will be support enough to prevent the velum from being shaken; therefore, the difficulty in pronouncing, in high and loud tones, these sounds that are required to pass mostly through the nose and a little through the mouth, will be in proportion to the amount of loss of support that the velum suffers. As usual, excisions leave a stump of the uvula and the central portions of the soft palate; these will prevent any vibrations during speech made with the *usual* force of the lungs.

I have observed that a patient, who has just undergone an operation for excision of an elongated and hypertrophied uvula, may talk immediately in an ordinary tone with greater ease than before the operation, but, just as soon as he utters words with more than the usual force of voice, such, for instance, as he would require to address a person across the street, some of the efforts will remind him of the excised uvula, and though not causing as much pain as the knife did, will cause so much that he will be compelled to cut his sentence short of its intended length. The reason of this effect on the uvula appears to me to be this: The heavy uvula had given so much support to the soft palate, that, although it had been acting as an impediment to all kinds of sounds, the velum required very little of its own pressure on the base of the tongue (figure 6) to prevent it from being thrown into motion by the air from the larynx, but when the superabundant portion of the uvula was removed, the velum required greater pressure upon the base of the tongue to prevent these vibrations, and this pressure was the occasion of the pain·

Of course the loss of the whole of the uvula does not interfere with the formation of the two semi-lunar-shaped openings by the free border of the velum and the dorsum of the tongue (figure 6), by which the voice is allowed to escape from the mouth, and thus provide for perfect vocalization; it takes away a part only of the support from the soft palate. Even if there be no stump left by the excision, the tongue will learn to overcome the defect by the increased elevation of its dorsum, which may be made more convex than was required to form the two semi-lunar openings than when the whole of the uvula was present, and in this way allow both a greater pressure and more of the central portion of the velum to rest on the tongue. But if the soft palate suffer so much of a loss of substance in its central portion, that its concavity is equal to the convexity of the dorsum of the tongue, thereby preventing the formation of the semi-lunar-shaped openings, and neutralizing all support, there will be some sounds, such as pass mostly through the pharyngo-nasal cavity and a little through the mouth, given imperfectly in spite of all efforts to overcome it, because the proper tone requires that the velum should be raised to allow a part of the sound to pass to the mouth, and this act of elevation exposes it to the force of the air from the larynx, which force is the cause of the imperfection of the sounds, by causing the unsupported edge to vibrate. Again, if the loss in the centre of the velum be greater than can be closed by the greatest convexity of the dorsum of the tongue, the disability will be equal to that caused by a perforation of the soft palate, and in addition, there will be a tremulousness to many semi-nasal tones, on loud speaking, as addressing an individual at a distance. That the intermittent tone is occasioned by the vibrations of the central portion of the velum is evidenced by the pain in this part after lengthy speaking in a loud voice. This pain was experienced by two patients while under my care, whose soft palates were notched to this extent by ulceration.

In answer to the second question—"how to account for the improvement of the voice after the removal of the uvula?"—I would ask, if it is claimed that this improvement in speech is equal to patient's vocalization at the time that his uvula was in

a healthy condition. I am sure, because the observations made on this subject during the last five years have taught me to be so, that the answer to this question should be given in the negative. That a relative improvement in speech does follow an excision of an elongated or hypertrophied uvula, there can be no doubt, because this operation brings the organ nearer to its normal size and condition; but it resembles the improvement made by perforating the membrana tympani in a case of deafness caused by a closure of the Eustachian tube; such improvement can never equal the normal function of the organ. This being the case, the effect of the excision will be to remove the cause of a mechanical hindrance to every word uttered by the patient, made in any degree of force, and it will leave a stump which will not be a cause of hindrance, but a cause of an inability to pronounce some words on forced vocalization only, and this even will be overcome in time by the dorsum of the tongue becoming more convex. Therefore, to admit that the removal of a uvula thus diseased may improve the ability to speak in the usual tone of voice, does not prove that it was the uvula's removal that was the origin of the improvement, for, if such were the case, the excision of the healthy uvula would not only be advisable, but desirable. (St. Louis Med. Jour.)

The effect of the amputation of the whole of the uvula, besides its being a loss of the greater part of the support to the velum, prevents the formation of the azygos prominence to its greatest height, which is done by the contraction or elevation of the azygos uvulæ muscles, which terminate in the uvula. This height of the prominence is required to prevent, by its contact with the posterior wall of the pharynx, the vibrations of the velum during the formation of many semi-nasal sounds.

The nearer that the surgeon can make the diseased uvula take the shape and size of the normal one, the nearer will it approach its normal function, that is, rendering the soft palate a non-vibratory valve, which is required for perfect phonation.

CLINICAL RECORDS.

"Ex principiis, nascitur probabilitas: ex factis, vero veritas."

ART. I.—*A Case of Puerperal Convulsions and Treatment—Recovery.* By J. R. SAMPLE, M. D., Liberty, Miss.

At 5 P. M., February 24, 1874, I was summoned to visit, in consultation with Dr. J. W. F. Webb, Mrs. ——, a primipara. Upon my arrival the patient was just passing out of a severe convulsion, and had had three such previous to my arrival, at intervals of about half or three-quarters of an hour. Dr. Webb had been sent for in the morning, and found the patient suffering with severe pain in head and back of neck. Prescribed xv grs. chloral hydrate every two hours, and iii grs. calomel every three hours. There was no appearance of labor, though she had gone to full term.

Upon an examination, I found the os slightly dilated and labor going on. Fifteen grs. chloral with two drs. wine ergot were administered every half hour. The patient had about three convulsions (after the latter treatment was commenced) up to 7 o'clock P. M., when the convulsions ceased. Patient became rational, and labor set in. We continued the chloral with i dr. wine ergot at intervals from one to one and a half hours until 12 o'clock at night. The patient continued to do well, labor progressing slowly. The stomach being a little irritable, with occasional vomiting, it was agreed to discontinue the treatment for a time. At 3 A. M. convulsions returned; patient became frantic and delirious. The function of deglutition was so much deranged by muscular contraction that it was almost impossible to administer a dose of anything. Convulsions went on at intervals of about three-quarters of an hour, until 9 A. M., when, labor having progressed sufficiently, chloroform was administered and the patient delivered by forceps, after which (the convulsions continuing) we succeeded in administering xv grs. chloral with x grs. bromide potassium, which was repeated every two hours. Patient had three convulsions after delivery, which were at much longer intervals than before. The mother and child are both now doing well.

I have every reason to believe, from the effect of chloral hydrate in this case, that it is the remedy for puerperal convulsions, if given in large and frequently-repeated doses. But to secure success, the patient should be kept constantly under the influence of the drug until delivery, and even after delivery for a time.

While chloral is prompt in its action, its effects soon pass away; and in order to secure the patient against the terrible consequences which may follow puerperal eclampsia, the medicine should be administered in large and frequently-repeated doses. But what can be done with the drug in those cases where the stomach will not retain it? This is the only difficulty which I have met with in the use of the medicine, which I hope will soon be removed by some of our scientific members of the profession.

In the case above mentioned the chloral controlled the convulsions, but on account of the stomach not retaining it the treatment was stopped, which, as stated, was followed by a return of the convulsions. The lancet or blood-letting was not resorted to in any form.

ART. II.—*Cinchonia in the Treatment of Intermittent Fever.* By C. W. NULL, M. D., Louisville, Ky.

A few weeks ago Messrs. Powers and Weightman, the well-known manufacturing chemists of Philadelphia, kindly sent to us, at the Dispensary of the Louisville Medical College, one pound of the pure alkaloid cinchonia.*

We have since been using it extensively in the treatment of the numerous cases of malarial troubles that apply to us daily for medical aid. We have noted specially its results in several cases, and will give briefly a few of them:

* Cinchonia appears either in the form of pellucid, brilliant, four-sided prisms; fine, white, crystalline needles; or, when precipitated from concentrated solutions, as a loose, white powder.—*Amer. Journal of Pharmacy*, vol. xxxviii., p. 452.

CASE I.—Alexander Craig; negro man; aged twenty-three; laborer; presented himself at the dispensary about two weeks ago, stating that he had been having chills every day at about 11 o'clock for ten days or more, the cold stage lasting three quarters of an hour, and the hot continuing till nearly night. During the first few days did not stop work. Has very little desire for food. Tongue much coated, and his bowels constipated. A purgative was prescribed, to be taken on going to bed, consisting of calomel, pulv. soc. aloes, each ten grains. Twelve powders of cinchonia, fifteen grains each, were directed to be taken—one three times a day. Before taking, mix the powder with milk, and after swallowing, follow it with a draught of water. He was instructed to take, in about twenty minutes, fifteen drops of aromatic sulph. acid. On his return a week later, said that he felt no further trouble after taking the medicine.

CASE II.—John Kelly, a native of Ireland, sixty years of age, living near the river in one of the most miasmatic localities in the city, applied for medicine to "break the chills." He had been having them several months, arresting them occasionally with sul. quinia or sul. cinchonidia, but they always returned in a longer or shorter time. Cinchonia was prescribed and directions given as in the above case. As requested, he returned one week afterwards, stating that he had no more fever after the second day of taking the medicine. To guard against a return of the trouble, we prescribed sixty pills, each composed of 1-20th grain arsenious acid, 1-30th grain sulph. strychnia, and one grain of reduced iron; to be taken one after each meal. We have not seen, among the many we treat of the old-standing or chronic cases of intermittent fever, one case which did not yield to the latter prescription when administered after first arresting the paroxysms with one of the alkaloids of barks (we usually did that with sulphate of cinchonia, it being about the cheapest one of the alkaloids).

CASE III.—Henry Hill, colored, aged eighteen years, a cart-driver, was in good health up to the first chill, which occurred three days before he applied for medicine. It came on about 1 o'clock each day, the fever continuing till near night. His

bowels were constipated, and he complained of great pain in back and head. A purgative was given, with directions to take cinchonia. On his return, six days afterwards, he reported that the medicine entirely relieved him.

CASE IV.—Thomas Riley, a child, aged seven years. Fever came on every day about 10 o'clock and lasted till night; no chill noticed. Has been taking cinchonia for one week. Fever stopped the second day after using it.

CASE V.—Lula Riley, aged four years, with about the same symptoms, reports no further trouble since taking the alkaloid.

CASE VI.—Lucy Evans, aged thirty-four years. Has not been free of malaria for six months. Chills were broken with cinchonia and followed with a pill of arsenic and strychnia.

CASE VII.—Mrs. M., married, aged twenty-three years, has two children; states that her oldest child, six years of age, and herself, had both been having slight chills and high fever following them. Cinchonia was given in the usual way, and ten days have now elapsed and no sign of return.

CASE VIII.—Tom Griffin, colored, blacksmith, says he has had chills and fever for more than a week. Had not stopped regular work, but said he had lost his strength considerably. We gave a purgative and sufficient amount of cinchonia. One week has now elapsed, and no further return.

CASE IX.—Martha C., aged thirty-eight years. Very much emaciated, she having suffered for six months with symptoms of tertiary syphilis. Was taken with intermittent fever about one week before applying to the dispensary. The same treatment was enjoined; chills were arrested, and did not return for fourteen days. A pill of arsenic and strychnia was given some days after using cinchonia.

CASE X.—M. H., a medical student, has not been clear of chills since fall; stopped them several times with quinine; has been taking cinchonia for over one week without any effect so far on the chills.

CASE XI.—Dennis Hafflin, aged nineteen years; common laborer, says that he took fever about two weeks previous. His bowels being constipated a purgative was administered. Took cinchonia for three days, with no apparent benefit. Larger doses

were ordered, and pills of arsenic and strychnia directed to be taken. Have not heard from him since.

CASE XII.—P. F., aged thirty-eight years; came to us two weeks ago complaining of great pain in his back and head with depraved appetite. He had severe chills the two previous days with the same symptoms preceding them. Cinchonia in thirty grain-doses three times a day, enough to last three days, was ordered. Has not returned since.

Many other cases have reported favorably in regard to aborting the paroxysm. None of the alkaloids seem to have the power of permanently curing intermittent fever among the class of patients we treat mostly, unless followed daily for about one month with arsenic and strychnia.

While there may be much virtue in this medicine as a convenient therapeutic agent, yet we will make still further trial of it before we venture to estimate its true clinical worth. If it can fully take the place of the bitter and disagreeable salts of the alkaloids, it will be certainly a most valuable addition to our materia medica. It being perfectly tasteless, it can be taken by children and persons of delicate stomach with as much ease as so much wheat flour. It is insoluble in water or any of the alkaline secretions, but very soluble in acids; and if any acid be present in the mouth, or if the saliva be acid in its reaction, which seldom occurs, it will dissolve a small quantity of the alkaloid, and the bitterness will be immediately developed. In order to avoid any bitter taste in the mouth, it is directed to be rubbed up with a small quantity of an alkali, carbonate soda, generally used ("twelve parts of the powder, sixty parts of sugar of milk, and one part of bicarbonate soda, which mixes readily with milk"); this will neutralize any acid which may be present, and prevent the development of taste. After it is swallowed, it is followed with a drink of water to wash down that which adheres to the parts.

When the insoluble alkaloid enters the stomach it meets the free acid, always present there, and is dissolved by it; rendered into such a condition that it is capable of being taken up and absorbed into the circulation by the venous radicles of the stomach. But the free acid of the gastric juice being a weak acid, and

secreted in comparatively small quantities, it is reasonable to suppose that if large doses are taken, the greater amount of each will pass through the stomach undissolved, and in the intestinal canal will be rendered more insoluble by the alkalies of the bile, pancreatic secretion and intestinal juices, all of which secretions are decidedly alkaline. Hence it will pass off as an inert substance with the fæces, unappropriated by the system. To insure its absorption in the stomach, acidulous solutions are freely administered in the course of half an hour, to act as an auxiliary to the acid of the stomach in dissolving the alkaloid. Any acid will answer the purpose, so that it has the power of dissolving cinchonia.

PROCEEDINGS OF SOCIETIES.

"Etsi non prosunt singula, juncta juvant."

Baltimore Academy of Medicine.

A Fatty Tumor, with some Remarkable Points in the Case. By H. P. C. Wilson, M. D., Surgeon in charge of the Woman's Department of the Union Protestant Infirmary, Baltimore; Fellow of the American Gynæcological Society, etc. Read before the Baltimore Academy of Medicine November 6, 1877.—I exhibit to the Academy this evening a fatty tumor, which I removed from Matilda Jackson on September 27, 1877, one month and fourteen days ago. It weighed seventeen ounces, measured eight inches in its long diameter, and four inches in its short diameter. It was pediculated, and grew from the skin over the anterior superior spinous process of the right ilium. The pedicle was two inches long, and one and three-quarter inch thick. When the woman was in the erect position, and the weight of the tumor put its tegumentary attachment upon the stretch, its lowest extremity reached nearly to the middle of the thigh. It was supplied with a large artery, which was distinctly felt by grasping the pedicle between the index finger and thumb.

I removed it by cutting through the skin of the pedicle, transfixing it in the line of incision with a needle armed with a double ligature, dividing and tying the ligature on each side, so as to make the thread bury well into the tissue, applying a Wells' ovariotomy clamp behind the ligature and severing the pedicle in front of it. I touched the stump with Monsell's solution of sub-sulphate of iron as an antiseptic. I was afraid to trust either ligature or clamp singly, on account of the size of the artery which supplied the tumor. I was afraid the clamp might slip, and I was afraid the ligature (on account of the thickness of the pedicle) would not constrict the artery sufficiently to prevent hæmorrhage; and such was the case. When the pedicle was first severed there was not one drop of blood lost. I then gradually relaxed the clamp, and before it was at all free the artery sprung and I was obliged to tighten it again.

The patient got on without an unpleasant symptom. I removed the clamp on the fourth day. Pedicle sloughed off on the tenth day, and I discharged the case well on the fourteenth day. She was whiskied and chloroformed by Dr. Grove, and I was assisted in the operation by Dr. Griffith. Dr. Tiffany kindly examined the tumor microscopically, and found only fat, with connective fibrous tissue.

I present this case to the Academy, not from anything particularly interesting in the tumor or in the operation, but because of some points in its history of much interest, both to the general pathologist and to the gynæcologist.

This patient is a very intelligent dark mulatto woman, aged forty; was born and raised a slave, in Missouri, to highly educated owners; was raised as a house-servant, and though unable to read or write, was thus, by association, very well educated. She gave a very plain history of the beginning and progress of this tumor up to the time of my seeing her.

1. She was born with what was considered to be two moles, one on her back near the lower angle of the right scapula, and the other on the anterior superior spinous process of the right ilium. The latter grew into the above tumor; the former remains as it was when she first remembered them both, about

the size of an ordinary green pea. It has not grown a particle in forty years. The latter did not begin to grow till she reached the age of thirty, and has been growing steadily and uninterruptedly since. It is a question why this little mass grew to its present size and the other has remained stationary through life. The patient can give no reason.

2. With each menstrual period this tumor increased one-third in size and weight, and decreased with the subsidence of menstruation. It was also exceedingly sensitive at these times; was often very painful, and could be carried with comfort only in a sling. These facts may throw some light on the cause of its growth while its associate has remained stationary. Connection with the pelvic arteries and nerves and its periodic congestions would explain the growth of this above its fellow, but it will not explain why this only began to grow at the age of thirty.

A third point of interest in this case is that she menstruated regularly every month while she was pregnant for six or seven days at a time, and used from four to six napkins daily when at her worst. At the end of her term she was normally delivered of a healthy child.

In a considerable obstetric experience of twenty-seven years, this is the first case of the kind with which I have met. I have repeatedly seen women apparently menstruate for one, two, or three months after conception, but I have never seen one before menstruate regularly during the whole term of pregnancy, and with no unpleasant results to either mother or child. In all the cases which I have examined where there was apparent menstruation for several months after the inception of pregnancy, there was found to be granular erosion about the cervix and up the cervical canal; and with the mucous membrane in this raw condition, and softened by pregnancy, it was easy to see how the slightest irritation might produce a flow of blood at each menstrual period, until the habit of menstruation had been effectually interrupted.

It is also easy to conceive how in such a condition of the cervical mucous membrane the habit alone of monthly uterine congestion might be sufficient to cause a flow of blood similar to

menstruation at the beginning of pregnancy; and I can imagine how under such conditions it might continue for nine months; but this woman's uterus was perfectly healthy, and she never had the slightest discomfort about it or the slightest reason to think it diseased.

A fourth point of interest is that, up to the age of thirty, when this tumor began to grow, she was regular in her bowels every day; but from thirty years of age to date of the operation she has been most obstinately constipated, never having an evacuation from the bowels oftener than once in two weeks, and usually once in from four to six weeks; and notwithstanding this most unusual constipation, she has never had a headache or any unpleasant symptom. I saw the patient yesterday (one month and fourteen days since the operation), and she assures me that she has not missed one day since then without a free evacuation of the bowels; sometimes two or three a day, and that without any laxative medicine.

5. Her uterus was found organically and functionally healthy. She told me yesterday that she never had any pain in menstruating till since the removal of the tumor. At the two menstruations since she has had some pain. She has also had since the operation occasional shooting pains through the abdomen, radiating from the seat of the tumor.

These facts may throw some light on the points, that before the tumor began to grow the patient's bowels were perfectly regular; during the growth of the tumor the bowels were most obstinately constipated, and after the removal of the tumor, the bowels became again regular every day, and occasionally several actions a day.

The innervation due to the bowels for their healthy action was concentrated on the development of the tumor; and when the tumor was removed the whole nervous supply was suddenly thrown back on the abdominal and pelvic viscera, as evinced by neuralgia of the bowels and uterus. The bowels become regular with pain; the uterus menstruates with pain; but so soon as this undue and sudden nervous flow is more equally distributed, these viscera will no doubt perform their functions without pain.

I may add that this woman never had but one child; was married at eighteen; child born at nineteen; husband was sold from her the third day after her delivery, and she never saw him again. She married a second time after ten years, but never became pregnant. She has always been a specimen of fine health; never had a day's sickness, and, to use her own words, "never took a dollar's worth of medicine in all her life."

Henderson Medical Club, Ky.

At a regular meeting of the Henderson Medical Club, held November 26, 1877, a committee was appointed to draft and report suitable resolutions relative to the death of Dr. Paul F. Eve, of Nashville. The following was reported and unanimously adopted:

The Silent Reaper has indeed been busy the past few weeks in removing from us men of national fame; an eminent statesman, a distinguished ex-Confederate soldier, a renowned dramatist, and last, but not least, Dr. Paul F. Eve, one of the brightest lights in the Medical Profession, have all answered the summons of Him who respects no distinction of rank or condition. We would attempt no fulsome eulogy of Dr. Eve's life and character, but simply give expression to our deep sorrow, and thus attempt to pay suitable tribute to his virtues. Devotedly attached to his chosen profession, he gave all his mental and physical energies in its service, and the eminence which he attained (having received the highest gift possible at the hands of the Medical Profession of America) is too well known to receive mention here. The most beautiful trait of his character—the religious element—which was ever a controlling force, always shone brightly. His great purity of life from early youth, an intuitive reverence for spiritual truth, he made the practice of the Christian doctrines a constant portion of his daily life, and evidently heeded the divine admonition: "Be ye also ready."

Whilst the springs of life seemed to be overflowing in the midst of his good work, his harness on, sitting by the bedside of a patient, the heart that beat with sympathy for the sick and

afflicted was suddenly stilled forever. Though with such suddenness, yet with equal trueness has a leader in life's duties, a man of untarnished rectitude, with a gifted intellect whom we delighted to love and honor, been gathered "like a shock of corn full ripe in its season" to his fathers.

"Well may we mourn him,
Well may we emulate him."

Resolved, That in the death of Dr. Eve our country, and especially the community in which he resided, has lost one of their best and brightest Christian citizens; our profession one of its most accomplished, purest, and skilled surgeons; the pen one of the most gifted of its members; the teachers of medicine one of the most instructive and able of their compeers; his family a loving, tender, and indulgent husband and father.

Resolved, That we, in common with the medical world, in the death of our much loved confréré, experience profound bereavement, and would respectfully tender to his stricken family our sincerest condolence.

Resolved, That a copy of these resolutions be forwarded to the family of the deceased, a copy sent to the "Richmond and Louisville Medical Journal" and the "Nashville Medical Journal" for publication, and the same spread upon the records of this Club.

J. B. Cook,
James H. Letcher,
W. B. Furman,
} Committee.

ORIGINAL CORRESPONDENCE.

"Sit mihi Fas scribere audita."

London, November, 1877.

Prof. E. S. Gaillard:

Dear Sir,—I wish in my letter to-day to give your readers a sketch of a very remarkable medical institution of London, the like of which can not be found in any other city. I refer to St. Mark's Hospital. This hospital was founded by Mr. Frederick Salmon (deceased) in the year 1835, and stands to-day unrivaled as a noble charity for the treatment of diseases of the rectum. The building is situated in what is properly called East London, at the intersection of St. John street with City Road street. It is a square building of modern architecture, though I am told by Mr. Allingham that the construction has failed in many particulars to meet the requirements, and that

to its location or some other cause the patients take on septic influence after operations—a thing unknown in his private practice. The effect of this poison, be it what it may, is very singular, as described by him, viz., a short time after operating the patient complains of pain in the joints, ushered in with a chill, and followed by profuse sweating. After a while an effusion takes place in or about the joints, and the bones rattle as pieces of chalk rubbed together. Under no circumstances does he let out the fluid. On one occasion one of his colleagues did so, and the result was most disastrous to the patient. The only treatment advised is supportive and tonic, with change of air as soon as possible. None of these patients die, though they suffer intense pain. Is it rheumatism? The officers in charge at St. Mark's are: Honorary Physician, Arthur Leared, F. R. C. P.; Honorary Surgeons, Peter Yeames Gowland, F. R. C. S., William Allingham, F. R. C. S.; Honorary Assistant Surgeons, Alfred Cooper, F. R. C. S., David Henry Goodsall, F. R. C. S. The regular days for attendance for males are Wednesdays, and for females Thursdays. These are out-door patients. They are seen, examined, and operated upon by the different surgeons. This includes the out-door patients under treatment and new ones. Upon the other days in the week special cases present themselves to the surgeons that have examined them. The regular day for operations in the wards is each Monday; operations performed by Mr. Allingham. As fast as a bed is emptied another patient takes the place. Those only are admitted who require an operation. The average attendance daily is from one hundred to one hundred and fifty males, and from seventy-five to one hundred females. This would seem to show a preponderance of rectal diseases among males, but it may be attributed to the fact that women are more backward than men in presenting themselves for treatment. At first thought it would appear that among the class of rectal diseases, hæmorrhoids would head the list, but it is not the case at St. Mark's. According to the analyses of 4,000 cases, as observed by Mr. Allingham in the out-door department at St. Mark's, it runs thus: Fistula, 1,208; hæmorrhoids, internal, 863; hæmorrhoids, external, 102; fissure, 446; syphilitic dis-

eases of the anus and rectum, 348; ulceration (neither malignant nor syphilitic), 190. So it appears that fistula greatly predominates. It is also a singular fact that females suffer more from stricture than males. It is not believed by the surgeons I have talked with that stricture is due to syphilitic influence, but rather to an ulcerated condition of the rectum, not malignant at all. True, a stricture may occur in the syphilitic patient who has ulceration (stricture is seldom found without ulceration), but it results from the ulceration, and not from syphilis. An observation of the above report bears out this assertion. Some of our American surgeons have taken an opposite view, notably, Dr. Roberts, of Philadelphia, and Dr. Mason, of New York. Yet there can be no better criterion by which to govern our opinion than a vast observation of cases which is certainly had at St. Mark's. Upon another point of rectal surgery there exists a difference among surgeons, viz., abscission of the lower portion of the rectum for cancer. Mr. Allingham holds that the affection is generally found so high up the bowel that the operation could not be performed without endangering the peritoneum; and second, that this disease always results in death; therefore better give ease as long as possible to the patient, and avoid so formidable an operation. As long as good or moderate actions can be had over cancerous bowel, colotomy is avoided. Mr. Allingham remarked that he would much rather perform the operation in cases where his patients could live and thank him for doing them good. As for instance, an ulcerated (not malignant) condition, with stricture. By giving these cases rest by colotomy they get well and the incision heals. Upon the subject of treatment of hæmorrhoids, the English surgeons are more in accord than the American.

I remember to have read a statement prepared by some surgeon in St. Louis a short time ago, in which he gave the result of some fifty cases of internal hæmerrhoids treated by an injection of carbolic acid, in which he claimed that the result was equally as efficacious as by ligature. In answer to this, both Mr. Cooper and Mr. Allingham say that no injection into the pile can equal the ligature in favorable results. Indeed, their observation of the effect of injections has been anything but

favorable. Mr. Allingham states that he tried the acid injection in six cases, but the result was so bad that he abandoned its use. Inflammation, of course, is set up, followed by suppuration, taking a long time to heal and causing great pain, or the result would be to form a thrombus, which would be absorbed. The mode of injecting is to throw, say one-fourth to a drop of carbolic acid with an equal part of glycerine into the pile by means of a hypodermic syringe, and this treatment must be confined to small tumors. Better success has been had from the injection of the acid preparation of ferri; say one-fourth drop in each hæmorrhoid. The thermo-cautére is used with quite a degree of success. In small piles the heated metal is passed just over them, and the pile is "dried up" at once. In larger tumors a smaller metal is inserted into each pile several times at a white heat. The instrument is a beautiful one, as devised by some Parisian surgeon, and Mr. Allingham praises it enthusiastically in its application to general surgery; say in extirpating tumors, healing ulcers, etc. I am indebted to him for a practical demonstration of its use. But, as has been remarked, nothing can or will ever supplant the ligature in the treatment of internal hæmorrhoids. Much difference exists among the profession as to how to apply these ligatures. Dr. Van Buren, of New York, says: "Seize the tumor with your hook, pass a curved needle pretty deeply through the base of the tumor, draw it through to the middle of the double ligature, cut the needle free and proceed to tie one of the ligatures as deeply as possible at either side of the base of the tumor, drawing the first knot tightly." Mr. Allingham says: "In expressing, as I do most unreservedly, the opinion that ligature is by far the best and most generally applicable method of operating, I must be understood to refer to the operation I am about to describe, and not to the usual method of applying the ligature by transfixion of the base of the pile and tying it in halves." The operation then described, and as practiced daily at St. Mark's, is to draw down the pile with a pronged hook, and with a pair of spring scissors separate the pile from its connection with the muscular and submucous tissues, by making a cut into the sulcus or white mark which is seen where the skin meets the

mucous membrane. This cut is carried a little way up the bowel, a waxed silk ligature is then applied tightly around the base of the tumor. Dr. Bodenhamer, of New York, (who is certainly authority), says: "Do not apply the ligature tightly, but just sufficient to hold, and do not apply to base of tumor because of the pain." To this procedure could certainly be offered the objection that a portion of the mucous membrane only would be included in the ligature, and whereas the tumor for a while would be better, a return of the disease would more likely occur. Again, contraction of the intestine would be more apt to follow. One would certainly be convinced, regardless of these differences, after witnessing the operations as related above and practiced at St. Mark's, and the proportion of speedy cures, that the preference must be given to this manner of operating. Having an engagement two days forward to witness some special operations performed by Mr. Allingham, I will try and narrate something interesting in my next.

J. M. MATHEWS, M. D.

CHEMISTRY AND PHARMACY.

"Diruit, ædificat, mutat."—HOR.

NOTE.—This department of the Journal is now in charge of Dr. C. W. Null, Lecturer on Materia Medica and the Physiological Action of Medicines in the Louisville Medical College. It will be conducted with great care, and will be of increased interest and value to the Professional Public.—ED.

Phytolacca Decandria and Grindelia Robusta.—In the "Journal of Nervous and Mental Diseases," Prof. Bartholow gives some observations and experiments with Phytolacca Decandria and Grindelia Robusta.

Phytolacca Decandria is the common poke which grows throughout the United States in great abundance, and has been prized very highly on the Southern plantations as a family remidy in rheumatism and various parasitic skin diseases. Dr. Bartholow finds that its effects on rabbits and frogs are very similar to those observed in accidental poisoning with pokeberries in man, and hence he thinks that the results of such

experiments might be received, without hesitation, as conclusively representing its true physiological action on man. "Phytolacca is a most depressing and nauseating emetic, and has been proposed as a substitute for ipecacuanha; but the suggestion has never been acted on, because the action is so intensely disagreeable.

Both in frogs and rabbits its nauseant effects are very obvious. When the frog is nauseated by it the under-jaw drops, and he presents the most ludicrous appearance of intense disgust.

Phytolacca is a specific emetic; that is, whether taken into the stomach or thrown under the skin, it causes nausea and vomiting. The gastro-intestinal secretions are increased by phytolacca and purging produced. Diffusion into the blood takes place with facility; but in what form, and what changes, if any, are induced by it in the composition of the blood, are quite unknown. It slows the cardiac movements and lowers arterial tension."

The heart continues in action after the entire cessation of the respiratory movements. This, he says, can be easily seen by paralyzing a frog with it until all external signs of life have ceased, when, on opening the chest, the heart is still seen in action. But it is a heart poison as well as respiratory poison, although it effects the respiration most. Phytolacca effects warm blooded animals similarily. "Injected a large frog intended for the table, with ℥i of the fluid extract. The first effect was sluggishness in all the voluntary movements, with increasing paresis. When a fore extremity was doubled up under the chest he made no attempt to remove it. The paresis increased so that he could not jump, and the hind extremities were somewhat extended. The lower jaw dropped, and the mouth remained widely open. When now an extremity was sharply pinched, he manifested no sign of pain. In an hour there was complete muscular relaxation, and all external signs of life had ceased. Opening the chest, by dividing the sternum, the heart was found to be in action, feebly beating eighteen per minute. The metronome showed the heart's action slowing and its pulsations feebler."

At the end of two hours the effects of the dose had declined considerably; the frog made violent efforts to turn over, and at last succeeded. The action of the heart then rose to thirty. When he had turned over and assumed the usual sitting posture, he looked quite natural, notwithstanding the opening in the chest.

The experiments appear to show that phytolacca is a powerful paralyzer of motility and sensibility, caused by the action of the drug on the spinal cord. When given to rabbits it produced the following symptoms: "At first, excitement followed by stupor, weakness of the extremities, trembling of all the voluntary muscles, and especially trembling of the ears; increasing paralysis, both motor and sensory; contracted pupils; convulsions; death ensuing from failure of respiration."

The use of poke is yet entirely empirical. It is said to be alterative; used much in chronic rheumatism, constitutional syphilis, parasitic skin diseases, unhealthy wounds, ulcers, and even cancers. Used also in mastitis, and is said to have remarkable powers for preventing suppuration.

Grindelia.—"This remedy comes to us from California. Its botanical name is Grindelia Robusta, and the leaves, stems, and flowers are the parts employed in preparing pharmaceutical products. The most eligible preparation is the fluid extract. It contains an alkaloid and an oleo-resin.

Half a fluid ounce of the fluid extract was required to kill a rabbit. Has an acrid, bitter, disagreeable taste; very persistent. It increases the salivary and cutaneous secretions. The action of the heart becomes more energetic. Increased blood for a short time then descends. The respiratory movements, at first hastened a little, become slower and fuller.

At first, increases action of brain, which is followed by mental calm, sleep, but not coma; the pupils dilated, respiration becomes slow and deeper, and the rhythm normal. In rabbits the condition of sopor is accompanied by a marked degree of muscular paresis begnning in the hind legs. The muscular contractility and nervous irritability remained normal, so that the paresis probably had its origin from the influence of the drug on the brain, or spinal cord, or both.

Notwithstanding the paralytic effects, grindelia decidedly exalts the reflex function of the cord. When the frog no longer makes any movement, if gently tapped will be thrown into tetanic convulsions. Death takes place from paralysis of muscles of respiration, and the cavities of the heart are distended with blood (in the frog); eliminated by kidneys. The oleo-resin is more or less irritating to these organs, and increases the amount of urine. Its action on the kidneys is similar to that of uva ursi, eucalyptus and buchu, whose activity is due to an oleo-resin.

Dr. Bartholow has used grindelia with much success in the treatment of asthma paroxysms, spasmodic cough from reflex causes; useful in bronchitis and bronchorrhœa, and in catarrhal states of genito-urinary mucous membranes.

"The effects which grindelia produce on the cerebrum as a hypnotic and anodyne are strongly suggestive of a sphere of usefulness in the future. How far the anodyne and hypnotic, so conspicuous in animals, will occur in man, remains to be seen.

Action of Boracic Acid on Plants.—According to Eug. Peligot, even very small quantities of boracic acid, either free or in combination, are fatal to plants. It is suggested that they may also be deleterious to animals, and if so, the foods preserved by means of borax, such as fresh meats received from Buenos Ayres, even though washed before use, might be injurious to the persons eating them. The question is being investigated further. The probability is, that boracic acid will be found entirely harmless to animals and man, as it has been hitherto supposed to be, it having merely a destructive action upon the living cell-walls of plants, thereby preventing the development of microscopic fungi even in animal tissues.

The California Ferment or Vinegar Plant.—A correspondent from Americus, Ga., last month sent us a sample of a substance called by the names of California vinegar plant, California beer or moss, etc., but for which he proposes the appellation of California ferment, as the most appropriate name. In appearance it is not much unlike pearl sago, only the color is light-brown. Of its properties our correspondent says,

that if about a tablespoonful of it is put into half a gallon of water, sweetened with molasses, and left a few hours at a temperature of 70° to 90° F., a lively fermentation sets in, and a palatable beer will be produced. The ferment will grow and eventually fill the bottle with a moss-like sediment, if it is not removed.

How to Raise the Vinegar Plant.—Another correspondent, Geo. M. Miller, Oakland, Cala., favors us with the following, which he copied from "Haney's Book of Advertised Wonders":

"What is popularly known as the 'Vinegar Plant' is only a form of the 'mother of vinegar,' which is again only a state of common mould. The manner of obtaining it is as follows: Leave a little vinegar in a small bottle to become stale (during hot, close weather is best), until a film appears on the surface. This film is the spawn or mycelium of a species of mildew, and is the incipient state of the vinegar plant proper. If a few fragments of coarse brown sugar be added, it will somewhat aid its growth, but when the film has acquired the thickness of parchment it is ready to transfer to syrup, where it soon becomes the house-wife's normal vinegar plant. Procure a large jar or bottle, and to two quarts of boiling water add half a pound of molasses and half a pound of the commonest brown sugar. Stir all these together, and, when cool, transfer the film from the surface of the vinegar to the surface of the mixture, and set aside in a warm cupboard. The film will grow rapidly, and form a thick, slippery gelatinous mass all over the surface of the mixture, and, in the course of six weeks, will change it into excellent vinegar. The plant can now be cut into pieces and put into a fresh portion of the mixture, and will continue to grow and change it into vinegar."

[In addition to the foregoing, we may add that, during the formation of the film, a different ferment is also produced, as many druggists may have observed in fermenting root beer. Under favoring circumstances a quantity of semi-transparent, granular substance, resembling bread crumbs, settles down to the bottom of the vat. This possesses very marked fermenting properties, and, when dry, is probably identical with the California ferment.]

Gallo-Tannic Acid as a Reagent for Ammonia.—A German exchange says: "Tannic acid derived from galls is known as a general reägent for alkaloids. It is, however, important to know that under certain conditions this reägent may lead to fallacious conclusions. Tannic acid, namely, produces in solutions of ammoniacal salts containing feeble acids a white precipitate, as, for instance, in solutions of ammonium acetate. If the ammonia, however, is combined with stronger acids, as, for instance, in solution of chloride or sulphate of ammonium, tannic acid produces no precipitate; but on adding a sufficient quantity of sodium acetate solution, the precipitate appears at once."

Hydrobromic Acid.—This preparation is rapidly coming into use among physicians. It may be conveniently prepared by taking 1,267 grains of bromide of potassium and 1,584 grains of tartaric acid. Dissolve the salt first, and then the acid. Let it stand on ice three or four hours, stirring it occasionally, then filter. The insoluble filtrate is cream of tartar. The hydrobromic acid remains in solution. It is prescribed in half to one-drachm doses. It has a remarkable power of allaying the irritating cough of phthisis, which is often so troublesome. It is also tonic and alterative, useful in bilious conditions. An elegant combination with quinine and other medicines in fevers, etc.

Emulsions.—A. F. W. Weynaber, in the "Druggists' Circular," gives some useful information regarding the preparation of emulsions. It is no doubt true that this part of pharmaceutical manipulation is often most sadly neglected by both the prescribing physician and the practical druggist. If the physician does not note the proper quantities, it is not possible for the druggist to do his part well; but much remains to the skill of the druggist in making perfect emulsions of oil or balsam.

Mr. Weynaber says that two modes of making such emulsions are in use. One method consists in making a thick mucilage, to which is added, in small portions, oil and water, until all is formed into a perfect emulsion, which then can be diluted with water without oil being separated. The other method consists in mixing the oil with the powdered gum in certain

fixed proportions, and then adding a certain quantity of water in proportion to the oil and gum used. The following statement will show the proportions in which the ingredients should be used:

Parts by Weight.—Oil 1, 2, 3; powdered gum arabic 1, 1, 1; water $1\frac{1}{2}$, 2, $2\frac{1}{2}$.

If the oil is mixed with the gum in a shallow porcelain mortar, and then the water be added in any of the above-mentioned portions, the emulsion will be formed. The ingredients should be weighed very accurately. When the emulsion is formed the stirring should be continued for a few minutes, and water be added gradually.

The first method requires more skill and the proper judgment of the pharmaceutist, while the operation, according to the second mode, can be performed by almost any young man if he only weighs out the ingredients in the proper way; but if the pharmaceutist has acquired all necessary experience and skill in making emulsions according to the second mode, he will finally be able to work according to the first mode also; and when the proper experience has once been acquired, the first mode will be found very convenient in many cases. A good oil emulsion should not throw out any oil in a day or two if left on a shelf undisturbed, and if no oil is thrown out it may be considered a perfect emulsion, constituting a combination of oil, water and gum, and not merely a mixture of the same.

To Silver Iron.—To silver cast iron, fifteen grains of nitrate of silver are dissolved in two hundred and fifty grains of water, and thirty grains of cyanide of potassium are added; when the solution is complete the liquid is poured into seven hundred grains of water, wherein fifteen grains of common salt have been previously dissolved. The cast iron intended to be silvered by this solution should, after having been well cleaned, placed for a few minutes in a bath of nitric acid of one-half specific gravity just before being placed in the silvery fluid.—*Druggists' Circular.*

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

"Judex damnatur cum nocens absolvitur."

Cyclopædia of the Practice of Medicine. Edited by Dr. H. Von Ziemssen, Professor of Clinical Medicine in Munich, Bavaria. Volume XV, "Diseases of the Kidney;" and Volume XVI., "Diseases of the Locomotive Apparatus, and General Anomalies of Nutrition." New York: William Wood & Company. 27 Great Jones Street. 1877.

There is not sufficient interest felt by the great body of the Profession in the subject of Diseases of the Kidney. Few subjects of greater interest could engross the physician's attention, and it is very important that this branch of medicine should be thus withdrawn from the domain of specialism and put within the reach of all. The literature of the subject was greatly enriched by Kober's treatise, published some years ago, and an impetus given to it which has resulted in several excellent contributions; the best of which is now presented to the Profession by Professor Bartel. The publishers of this Cyclopædia have more than fulfilled their promise, and have produced a work of great value and importance.

Lectures on Practical Surgery. By H. H. Toland, M. D. Professor of the Principles and Practice of Surgery and Clinical Surgery in the Medical Department of the University of California. Philadelphia: Lindsay and Blakiston. 1877. Pp. 508.

Those who are interested in seeing medical science advance in the comparatively new regions of this vast country will welcome this book, which comes as a pioneer from the far distant regions of California. It is hoped that this messenger will return to its owner so richly freighted with the evidences of success, encouragement and hearty welcome, that it will be but the forerunner of many valuable works from the same section. There is every reason why this should be so. If the physical characteristics of a country are really represented in the mental condition of its representative men, there is much that is rich and valuable which should be given to the Profession from California. Dr. Toland's work is strongly and agreeably written, but having this distinct personality and originality, it

will, as a matter of course, fail to be sustained in some of the views expressed by the great mass of the Profession. It is not, however, less interesting on this account. His views on pathology are not infrequently such as to demand sharp criticism, and his diction is often inelegant and incorrect, but the work was hastily written, manifestly, and from a clinical standpoint, so that it is ungenerous to subject it to the analytical criticism proper where a systematic treatise is offered.

Practical Hints on the Selection and Use of the Microscope; intended for beginners. By John PHINN. Edition of the American Journal of Microscopy. Second edition. From the "Industrial Publication Company," New York, 1877.

It is hoped that the number of "beginners" will so greatly increase during the year 1878 that John Phinn will add to this most interesting little book a volume of more advanced teaching. He is fully capable of doing so, as soon as the present volume has created a demand for it.

Transactions of the Medical Association of the State of Alabama. Thirtieth Session, held at Birmingham, April, 1877.

Among the reports is a list of all the yellow fever visitations in the cities and towns of the United States since the year 1693, with the reputed source of the disease when known. These statistics are quite reliable, and are gathered with much care. The original contributions are very interesting.

An Elementary Treatise on Practical Chemistry, and Qualitative Inorganic Analysis, specially adapted for use in the Laboratories of Schools and Colleges, and by beginners. By FRANK CLOWES, D. Sc. London, Fellow of the Chemical Societies of London and Berlin, etc., etc. With illustrations. From the Second English Edition. Philadelphia: Henry C. Lea. 1877.

This Elementary Treatise is not so abstruse as to be beyond the reach of the busy practitioner. It is small enough for him to carry in his pocket, and he can make profitable the dreary loneliness of miles of driving in the country by taking this little volume for his companion; bringing up his chemical knowledge to the standard of the most advanced thinkers. This can be done, even though it is not possible for him to be himself a practical chemist and original investigator.

Nurse and Patient and Camp Cure. By S. Weir Mitchell, M. D. Pp. 73. Philadelphia: J. B. Lippincott & Company. 1877.

Dr. Mitchell's style is easy and genial, and this little book will be found to be pleasant reading. It is very short, and written in the sketchy, discursive style which requires no mental effort on the part of the reader. Some of the suggestions are good, but it is not believed that any real remedy is offered for those annoyances in the sick chamber with which the physician is constantly brought into contact. So long as human nature is what it is, so long will every physician have his patience tried, his temper irritated, and his success jeopardized by the interference of ignorant and meddlesome nurses and relatives of the sick. How can these last be manacled? He will indeed receive the marble shaft due to the philanthropist who can tell how it is to be done.

Veratrum Viride—Its Physiological Effects and Therapeutic Uses. By John S. Lynch, M. D., Professor of Principles and Practice of Medicine, College of Physicians and Surgeons, Baltimore, Md. Baltimore: Innes & Company. 1877.

Transactions of the Medical Association of the State of Missouri, at its Eleventh Annual Session, held in Kansas City, April, 1877. St. Louis, Mo.: Charles H. Davis & Co.

Transactions of the Twenty-fourth Annual Meeting of the Medical Society of the State of North Carolina, held at Salem, N. C., May 22, 1877. Salem, N. C.: L. V. & E. T. Blum.

First Annual Report of the State Board of Health of the State of Wisconsin. For the year ending December 31, 1876. Madison, Wis.: E. B. Bolens.

On the Use of Alcoholic Liquors in General, and of the Wine of St. Raphaël in Particular, in Temperate and Cold Countries. By Dr. Bouchardat, Professor of Hygiene at the Faculty, and Member of the Academy of Medicine, Paris. Published by the St. Raphaël Wine Company, London, 1877.

Annual Report of the Surgeon General, United States Army. 1877.

Cephalic Version by the External Bi-Polar Method. Arrest

of Profuse Post-Partum Hæmorrhage with Tincture of Iodine. By John S. Coleman, M. D., Augusta, Ga. New York: William Wood & Co.: 1877.

The Virus of Venereal Sores; its Unity or Duality. By Freeman J. Bumstead, M. D., late Professor of Venereal Diseases in the College of Physicians and Surgeons, New York. Philadelphia: 1877.

Origin and Progress of Medical Jurisprudence. 1776—1876. A Centennial Address by Stanford E. Chaillé, A. M., M. D., Professor of Physiology and Pathological Anatomy in the Medical Department of the University of Louisiana. For the benefit of the legal and medical professions of the United States. Philadelphia: 1876.

Pyæmia and Septicæmia. By B. A. Watson, M. D., Surgeon to Jersey City Charity and St. Francis Hospitals, Jersey City, N. J. New York: D. Appleton and Company. 1877.

A Series of American Clinical Lectures, Edited by E. C. Seguin, M. D. Points in the Diagnosis of Hepatic Affections. By E. G. Janeway, M. D., Physician to Bellevue Hospital Medical College, etc. New York: G. P. Putnam's Sons. 1877.

Ninety-Fifth Annual Catalogue of the Medical School (Boston) of Harvard University. 1877–78. Cambridge: Charles W. Sever.

What is the Comparative Physiological and Therapeutic Action of Free Phosphorus and the Hypophosphites? An Essay, to which the "Merrit H. Cash" Prize was awarded by the New York State Medical Society, 1876. By Samuel R. Percy, M. D., 47 West 38th Street, New York, Professor of Materia Medica in the New York Medical College; Professor of Materia Medica and Chemistry in the American Veterinary College; Honorary Member and late Physician to Mt. Sinai Hospital; Recipient of the Prize of the American Medical Association for the year 1863, and also for the years 1866 and 1872; Recipient of the Prize of the Alumni Association of the Medical Department of Columbia College for the year 1866, and also for the years 1867 and 1868; Recipient of the Merrit H. Cash

Prize awarded by the New York State Medical Society for the year 1876. New York: E. P. Coby & Co. 1877.

Transactions of the Texas State Medical Association. Held in the city of Galveston, April 3, 4, 5, and 6. Marshall: Jennings Brothers. 1877.

The Proceedings of the Medical Society of the County of Kings. Brooklyn, N. Y.: Wheat & Cornett. September, 1877.

Morphia in Childbirth. By W. T. Lusk, M. D., Professor of Obstetrics, Bellevue Hospital Medical College. New York: William Wood & Co. 1877.

New Departure in Medical Teaching. A lecture delivered at the beginning of the course on Pathology and Practice of Medicine in the University of Michigan, October 1, 1877. By A. B. Palmer, A. M., M. D., Professor of Pathology and the Practice of Medicine. Ann Arbor, Mich.

Aiken as a Health Station. By W. H. Geddings M. D., of Aiken, S. C., Member of the Medical Association of South Carolina, American Medical Association, and other Medical Societies. Charleston, S. C.: Walker, Evans & Cogswell. 1877.

Apollinaris Water. Analysis and Account of the Water, with Extracts from the Notices of the Press, and Testimonials from Eminent Members of the Medical Profession. New York: Frederick de Bary & Co.

The Medical Intelligencer, containing Comments, Editorial Notices, and Contents of New and Important Works, recently published, with a List of Text-Books and other Publications of Lindsay & Blakiston, Philadelphia.

First Tour of the American Floating Sanitarium. Winter of 1877–78. New York: Homer, Lee & Co. 1877.

Report on Epidemics. By L. S. McMurtry, M. D., of Danville, Ky. Louisville, Ky.: John P. Morton & Co. 1877.

Illustrated Catalogue of Surgical Instruments and Appliances, for sale by Codman & Shurtleff, Manufacturers and Importers, Boston, Mass. Cambridge: John Wilson & Son. 1877.

MISCELLANEOUS.

"Non omnes eadem mirantur amant que."

Influence of Iron Mixed with Food on the Blood.—Nasse ("Marburg Sitzungsbericht," No. 3, 1877,) fed a dog weighing about 17⅔ pounds, during eighty-seven days, with bread and potatoes; giving at the same time, for twenty-five days, 15½ grains of lactate of iron daily, and for the remaining sixty-two days 18½ grains of oxide of iron each day; the dose in each case being mixed with about six-sevenths of an ounce of fat. The weight of the animal increased by more than two pounds. The specific gravity of the blood rose from 1052 to 1060.8; that of the serum remained nearly unchanged. The amount of iron in the blood increased from 0.477 per mille to 0.755. In seven other dogs, out of eight subjected to experiment, feeding with various preparations of iron was followed by an increase of the solid constituents and of the specific gravity of the blood; the latter being 3.02 higher than before, indicating an addition of 7.6 per mille to the former. The increase of the solid constituents depended solely on that of the blood-corpuscles. The amount of iron in the blood rose regularly. In conclusion, the author expresses his belief that the administration of iron mixed with fat is productive of the most fruitful results; and he recommends the use of fat food containing iron for anæmic patients.

Pneumonomycosis Sarcinica.—Under this name, M. Heimer describes, in the "Deutsches Archiv für Klin. Med.," vol. xix, a case of which the following is an abstract. A servant-man, aged fifty-seven, admitted into hospital with symptoms of an advanced stage of pulmonary phthisis, was seized on the eighth day with pneumonia of the right lung. The sputa contained fibrinous coägula, pus-cells, granular cells, epithelium, fat, numerous molecules, and a large number of sarcinæ. At the necropsy, there were found thickening, excavation, and caseation of both upper lobes; and the two lower lobes of the right lung were hepatized. In the anterior part of the middle lobe of the right lung was a cyst filled with gas and a little fluid. The gas had no bad smell, and the fluid had an acid reäction. The cavity

was about four inches and three-quarters in circumference, and was bounded by the broken-down lung-tissue, which contained a large proportion of sarcinæ. The sarcinæ were colorless, and were found also in the pus-corpuscles. Two similar cases have been described by Virchow, and one by Cohnheim; all occurred in phthisical patients. Heimer believes that his patient took in the sarcinæ by inspiration while in the hospital; that, through their very rapid development, they caused localized softening in the lung; and that this gave rise to the fatal pneumonia.

The Royal Palaces.—The very frequent appearance, of late years, of typhoid fever amongst the members of the Royal Family has naturally caused in the public mind a feeling of doubtfulness as to the sanitary condition of the Royal palaces. We are pleased to know that one of those buildings, the Marlborough House, has been recently so thoroughly overhauled that all anxiety on the score of its bad drainage may now be dismissed. The whole of the basement has been examined, with the result of finding the most discreditable state of affairs. Old drains and cess-pools were found, the existence of which was not even suspected by any person in authority. No one knew what they had been made for, and they had formerly been cut off, and were found to be filled with decomposing filth and swarming with rats. Of course, they have all been removed, and the ground they occupied has been filled in with concrete. New drains of the most approved description have been put down. All these works have been done by the Board of Works, under Mr. Taylor, the Chief Engineer Inspector of the Board.

As regards the other royal residences, we learn that Windsor and Sandringham have both at various times been reported upon by Mr. Rawlingson. At Balmoral and Osborne, the necessary sanitary works were thoroughly carried out by the late Mr. Cubitt, who built both houses.

At Sandringham, since the illness of H. R. H. the Prince of Wales, a special supply of pure water is furnished to the royal table from two springs on the estate, which, though small, produce very pure water. The house has also been thoroughly ventilated. The drains were examined by Mr. Rawlingson, who

removed all the cess-pools. The sewage is now to be carried by drains a mile from the house into the park. Water-works are in progress, and will be completed before Christmas, which will provide a water-tank seventy feet high, capable of storing 32,000 gallons of pure spring chalk water, to be softened by Clark's process, and giving a pressure for fire service of 150 feet.—*Brit. Med. Jour.*

Accidents in all Countries.—French official statistics show that, in the time of the Messageries, there was one traveler killed for every 335,000, and one wounded in 30,000; whilst of 1,781,403,687 travelers carried by the French railways, from the 7th of September, 1835, to the 31st of December, 1875, there was only one traveler killed in 5,178,490 travelers carried, and one wounded in 580,450. If the accidents be divided into two groups, corresponding to the two periods from the 7th of September, 1835, to the 31st December, 1854, or from January, 1855, to 31st December, 1875, the figures are the following: In the first period, from September 7th, 1835, to 31st December, 1854, one traveler was killed in 1,955,555 carried, and one wounded in 496,555. In the second period, from 1st January, 1855, to 31st December, 1875, one traveler was killed in 6,171,117 travelers carried, and one wounded in 590,185. Thus it is seen that, in the second period, the number of accidents was considerably diminished. In later years the proportion is still less; and the results, in countries such as France, England, and Belgium, are particularly significant. In France, during the years 1872 to 1875, there was one traveler killed in 45,258,270 travelers carried, and one traveler wounded in 1,024,360. In England, from 1872 to 1875, one traveler was killed in about 12,000,000 travelers carried, and one wounded in 336,000. In Belgium, from 1872 to 1875, there was one killed in about 20,000,000 travelers carried, and one wounded in 3,500,000.—*Brit. Med. Jour.*

Typhoid Fever and Water.—Typhoid fever having broken out seriously at Backenden and Accrington, says the "British Medical Journal," Mr. C. W. Wigner has obtained samples of

water from half a dozen houses in the infected districts, in accordance with instructions from the Sanitary Record, to investigate the character of the water supply. He reports that the water in both cases is most dangerously foul, having an offensive smell when warmed, and showing on a chemical analysis signs of a filthy animal contamination. Both microscopical and chemical examinations of the water indicate impurities, such as to render it highly probable that the water is the cause of the epidemic.

Cretaceous Degeneration of the Arteries.—The "Bulletin of the Société de Médecine publique et d'Hygiene professionnelle," contains a paper by M. Gubler, entitled "Suggestions for New Researches on the Causal Conditions of Cretaceous Degeneration of the Arteries." M. Gubler has remarked that this degeneration, which in process of time attacks every one, by no means affects all classes of society equally. Whilst the opulent and the citizen classes generally retain arterial suppleness and elasticity until the age of sixty, it is not uncommon amongst the indigent and the rural population to notice thickening and resistance of the radial arteries at the age of forty, thirty, or even twenty years. M. Gubler has tried to discover the reason of so striking a contrast. He first pitched upon alcohol as the great sinner; but, on reflection, and without exonerating it from a certain degree of participation in the atheromatous and calcareous change of the arteries, he has not been able to find the general cause of the facts observed in the toxic action of this substance. He is strongly of opinion that the true cause is to be found in the difference of diet; the animal diet of the rich and of those dwelling in cities, and the vegetable diet of the poor and of peasants. Studying, on the one hand, the composition of the alimentary vegetable substances, rich in mineral principles, more especially in earthy salts (phosphates and carbonates); on the other hand, the texture and the mode of vitality of the middle coat of the arteries, which present the most favorable conditions for retaining in the meshes of its tissues the deposits of incrustating matters introduced into the animal economy, M. Gubler establishes the pathological

physiology of the production of arterial atheroma under the influence of a vegetable diet. Several facts are confirmatory of this view. The Trappists, who live on vegetable food exclusively, very soon show arterial degeneration. It is thus that in chalky soils where the drinking water, loaded with earthy salts, adds its action to the vegetable diet, so as to introduce a large amount of these salts into the animal economy, arterial atheroma is more common and of earlier origin than in regions of siliceous formation.

Chloral in Whooping-Cough.—Dr. Mulligan, of Wirksworth, writing in the "Practitioner" on the action of chloral in whooping-cough, says: "Early in the present year I saw five cases of this disease in one house, the ages of the patients varying from eighteen months to ten years. All were uncomplicated; the characteristic cough was well marked, attended with a considerable discharge of thick glairy mucus. In the oldest, the spasms were violent; and in three cases the paroxysms terminated in vomiting. Belladonna and bromide of potassium were administered without benefit. I then gave chloral hydrate in doses of from one to five grains three times daily with marked benefit. Seven other cases have since been treated successfully in the same way. The decided effects produced by this drug on reflex irritability are likely to result in much good from its use in this disease."

Tolerance of Chloral in Delirium Tremens.—Dr. P. H. Bishop reports in the "Boston Medical Journal" a case of delirium tremens, in which a man suffering from the usual symptoms took in delirium a dose of one hundred and sixty-five grains of chloral hydrate in one draught. He slept thirty-six hours. His pulse during the first hour rose to 132; in the third hour it had gone down to 88, and remained unchanged, full and soft. The temperature never varied from 99 degrees Fahr. Dr. Bishop adds that the amount taken, a trifle over one hundred and sixty-five grains, is the largest dose which was not fatal that he has ever heard mentioned or read of; and that there should not arise one single alarming symptom, such as

diminished temperature, sighing respiration, a slow, feeble pulse, or pallor of the features, renders the case remarkable. The patient awoke entirely relieved from his trouble.

A Singular Death.—A singular case of death lately took place at the Laribosière Hospital under the following circumstances: The deceased, a boy aged seven, was admitted into the hospital complaining of pain in the head, accompanied with a tendency to stupor. His eyes were somewhat prominent, but nothing else remarkable was noticed in the patient. About a month after admission, coma set in, and this was accompanied with high temperature, which carried him off. A small, hard body was felt over the right eye, which was supposed to have been the cause of death. At the post-mortem examination, the real cause was traced to a carious tooth, one of the inferior molars, which caused an abscess in the jaw. The inflammatory process extended along the dental nerve, entered the skull through the orbit, involving the dura mater and the brain. The latter contained two or three abscesses, and the bones of the skull were necrosed to a considerable extent. An abscess was also found in the heart. This case would show how important it is to attend early to carious teeth, and to have them removed as soon as inflammatory symptoms become evident, and not to tamper with them by "stopping" or other useless means frequently resorted to by dentists, to the detriment of the patient's pockets, if not of their health or life.—*Brit. Med. Jour.*

Heroic Devotion.—One of the nursing sisters of the Order of Troyes succumbed last week to an attack of hydrophobia, contracted under circumstances of no ordinary heroism. As related in the "Gazette Hebdomadaire," a month ago Sister S. was taking charge for a walk of some convalescent children, the eldest of whom was only eight years of age, when they were suddenly assailed by a sheep-dog, whose jaws were running with foam, and who attacked with fury. She instantly saw the danger of her charges, and, resolutely interposing between the terrified children and the furious animal, bravely withstood its attack. She was severely bitten, and the dog, excited by the

cries of the children, endeavored to rush upon them. Then followed a splendid act of devotion. Protecting with her body the children, who hung on to her petticoats shrieking with terror, this brave girl threw herself courageously on the dog, and for ten minutes grasped it, rolling over with it, and thrusting her fist into his mouth to prevent his biting the children. Some peasants, who came up at last, beat off and killed the dog. The Sister was found to have fifteen deep wounds on her hands and lacerated arms; an important artery was wounded. Skillful care was given to her wounds, ligatures were applied, the parts torn were cauterized, and for a short time after her return to Paris some hope existed that she might escape the ultimate fate which there was so much reason to fear. On Thursday last, however, the pharyngeal spasm, vomiting, and hydrophobia in all its characteristic symptoms, appeared; and Sister S. died from this fatal and fearful disease, finding consolation in the certitude of having saved, at the price of her life, the five children who had been confided to her. Such traits of heroism can hardly serve for an object of comment; their memory becomes a title of glory to the families to whom their authors belong and represent, in the eyes of all, the spirit of sacrifice and devotion in its most sublime expression.

Inebriates not Eligible as Voters.—In France, notwithstanding so many persons believe that wine-drinking prevents drunkenness, they have seen the need of passing the following law: That every one condemned twice by the police for the crime of open drunkenness, is held to be incapable of voting, of elective eligibility, and of being named for the jury or any public offices.

Billroth on Ovariotomy.—Speaking at Vienna on the 20th instant, Professor Billroth said: "To-day I have performed my one hundredth ovariotomy. What a large number this would have appeared only a few years ago! But how small beside the brilliant roll of Spencer Wells. The work he related to the British Medical Association at Manchester excites our highest wonder and admiration."

MEDICAL NEWS.

'Nulla dies sine linea."

Health of the Pope.—Dr. Ceccarelli has permanently taken up his abode at the Vatican, so as to be near the Pontiff, whose condition is such that his "secret surgeon" has to visit him three and occasionally four times a day. His general health is now so enfeebled that the power of sitting upright in a chair is well nigh gone.——*Inflation of the Urethra as an Aid to Catheterism.*—A. B., sixty years of age, came under notice at the Ardwick and Ancoats Dispensary, Manchester, three weeks ago, says Peter Tyler, M. D., suffering from several perineal fistulæ. I endeavored on two separate occasions to pass a catheter into the bladder, but failed. I attributed the reason of failure to distortion of the urethra by the contracted cicatricial tissue of the fistulæ. In order to remove this distortion and straighten the passages as much as possible, I injected a solution of carbonate of soda, and then another of tartaric acid, taking care to secure the meatus with the fingers of one hand and the fistulæ with the tips of the fingers of the other hand. In this way the urethra was strongly distended, and the gas finally forced its way out through the fistulæ. I then reättempted catheterism, and had the satisfaction of passing a No. 3 instrument right into the bladder without any difficulty whatever. This is the only case I have to offer in support of the method of inflation as an aid to catheterism. This method of inflation is perhaps clumsy; but I have given it, as it was the one used in the case. A Politzer's bag, with a small tube to fit into the urethra, would perhaps be more serviceable. I think inflation might be useful in removing calculus in the urethera, and possibly in some cases of retention of urine, and also to give steadiness and precision to internal urethrotomy.——*Metallo-Therapeutics.*—We gave recently an account of the clinical investigation made at the Salpêtrière by M. Charcot, at the instance and with the assistance of Dr. Burq, on the metallo-therapeutic method of the latter. This method, it will be remembered, consists in the employment internally and externally of metals in the treatment of certain diseases, taking

into account not only for each disease, but also for each patient its special metallic sensibility; that is to say, that a case of hysteria, chlorosis, or neuralgia being given, the patient must take, medicinally, the metal which, when employed as a plate upon the skin, shall have excited sensibility, mobility, and capillary circulation, and have commanded perspiration. Four of the patients who were the subjects of metalloscopic examination, which was reported on by a Commission of the Sociètè de Biologie, have been treated by the internal employment of the metals of which the Commission had recognized the external action. They were all cases of heminæsthesia, accompanied by severe hysterical phenomena; the reports in the "Gazette des Hôpitaux," No. 13, 1877, indicate that they have all remarkably improved in respect both to the sensibility of the skin and to their strength under that treatment. It must, however, be remembered that all these patients were the subjects of aggravated hysteria, and it is very difficult to establish any settled conclusions from patients of that type of character. M. Magnan, the accomplished and eminent physician at the Asile St. Anne, showed us recently in Paris some patients apparently most favorably situated for the treatment in question in whom the results obtained were absolutely nil; and at Berlin a like result attended the effort to repeat M. Burq's experiment at the Salpêtrière. We are still inclined to think that there is a great deal of mystification about these four patients at the Salpêtrière, who were unquestionably women of the most artful type, and confirmed hysterics, and who may have succeeded in the same manner in misleading their physicians as the Okeys did Dr. Elliotson. At the same time, their imagination was possibly so far impressed by the mystic apparatus of the metalloscope, and public demonstrations to which they were subjected, as to have of itself effected a very considerable amelioration in their symptoms when the internal medication was commenced. —*Brit. Med. Jour.*——*The Contagious Diseases Acts* during the past year have been extremely satisfactory, as regards both their medical bearings and their reformatory character. At the annual meeting of the Royal Albert Hospital, which has recently been held, it was pointed out by Mr. E. St. Aubyn that in Devonport and Plymouth the number of men in the army

incapacitated by disease had fallen from 76 per 1000 in 1867, the year in which the Acts were first introduced, to 29 per 1000 in 1875, whilst in districts to which they had not been applied, such as London, the number had only decreased from 163 to 146. He also referred to the Government returns for the navy, which showed that during the period 1871–75 the number of men incapacitated in protected ports was 43 per 1000, whilst unprotected ports gave an average of 96. Nothing can be more conclusive than these figures from the medical standpoint. The reformatory work was equally encouraging, for we find from the chaplain's report that eighteen women had been admitted to, and still remained in, homes and penitentiaries; thirty-seven had returned to their friends, gone into service, or married, from all of whom good reports had been received; whilst seventeen had relapsed into their former mode of life.——*University of Cambridge and Darwin.*—The University of Cambridge rarely confers its honorary degrees on its own members. On Saturday, however, the honorary degree of Doctor of Laws was conferred upon Charles Darwin, who is a graduate in Arts of the University. The Senate house was crowded on the occasion, the galleries being packed with undergraduates, and the floor of the house with members of the Senate, ladies, and strangers, who had come to witness the ceremony, and do honor to the man. Among the latter were Professors Huxley, Tyndall, Ramsey, Garrod, Adams, and Parker; Drs. Wilks, Pye-Smith, and Burdon Sanderson. A Latin address was delivered by the public orator, in which he referred to Darwin's ancestry as an illustration of hereditary genius, alluded to his various works and views, and concluded by saying: "Tu vero qui leges naturæ tam docte illustraveris, legum doctor nobis esto." The degree was then conferred by the Vice-Chancellor in the usual form, amid the acclamations of the spectators.——*Gale's Long Walk.*—On Saturday evening last, Gale completed his long walk of 4,000 quarters of a mile in 4,000 consecutive ten minutes, accomplishing 36 miles every 24 hours for 28 days. Mr. Gant, his professional attendant, detailed Gale's condition from week to week; at the end of his severe task, he was in excellent health in every respect.——*The Edinburgh Medical School.*—In spite of the severe losses which the Edinburgh Medical School

has recently suffered in the removal to London of Mr. Lister and Dr. Matthews Duncan, and the resignation of Sir Robert Christison, the number of the students, which has been steadily on the increase for some years back, shows a further advance this session. We are told that about nine hundred and twenty medical students have matriculated at the University, a very considerable rise even over the large numbers of last year. The increase, as was to be expected, is among the first-year men, of whom there are nearly, if not quite, a hundred more than at the corresponding date of last year.—*British Medical Jour.*——A "day-nursery" was started in Stockbridge Edinburgh, in April last, intended for the care of children whose mothers are employed away from home.——*Illness of Professor Stokes.*—Dr. Stokes, the distinguished Regius Professor of Physic in the University of Dublin, had an attack of apoplexy November 17. He is hemiplegic, and his condition such as to give rise to the gravest apprehensions.——*The Late Dr. Handsel Griffiths.*—We regret to announce the death, on the 16th of November, from enteric fever, at his residence in Dublin, of this much-respected gentleman. Dr. Griffiths was a native of Waterford, and received the first part of his medical education in the Queen's College, Cork. He subsequently studied in Dublin, London, and Edinburgh, and became a licentiate of the Colleges of Physicians and of Surgeons of the latter city in 1871. He was also a Doctor of Philosophy of the University of Göttingen. Dr. Griffiths chiefly devoted himself to the subjects of materia medica and therapeutics, and published some excellent and useful little volumes thereon.——*New York Nurses.*—A New York correspondent gives the following characteristic and interesting report of the working of the system of training lady nurses, which has lately extended from England to America: "The first annual commencement of the Training School for Nurses at the Charity Hospital, Blackwell's Island, took place recently, and was a very pleasant affair. It was held in the large hall of the west wing of the hospital, which was tastefully decorated for the occasion with evergreens, flowers, and flags, and there was a large attendance of invited guests (among them Mayor Ely and Ex-Mayor Wickham), who came over to the island on the steamboat belonging to the Commis-

sioners of Charities and Correction. The pupils of the school presented a very prepossessing appearance in their neat caps and aprons, and certainly would have offered a very marked contrast to any body of nurses that could have been gathered from any of our hospitals ten years ago."——*Skin-Grafting from the Pig.*—A little girl, with a large granulating surface of about seven inches square, the result of a burn, says Thomas F. Raven, L. R. C. P., Broadstairs, "recently came under my care. I procured cicatrization (and without any contraction) of the greater part of this surface by means of the insertion of more than three hundred skin-grafts. But then my supply of skin, not unnaturally, came to an end. I had resort in my difficulty to a young pig, and a few days ago I inserted upwards of twenty grafts of his skin, and with very good results.—*Brit. Med. Jour.*——*Rabies and Hydrophobia.*—We understand that Sir Thomas Watson will publish, in the next issue of the "Nineteenth Century," an article on Hydrophobia and Rabies. Sir Thomas Watson will point out that our present knowledge of these diseases justifies the conclusion that they are spread solely by infection, and are in some large tracts of country unknown. He will urge the necessity of preventive sanitary legislation, such as will insure the observation of dogs, and secure the isolation and, when necessary, the destruction of infected animals.—*Brit. Med. Jour.*——*A Home for Women Drunkards.*—On Monday last, at the Mansion House, under the presidency of the Lord Mayor, a conference was held in aid of the establishment of an industrial home for the reformation of women who are habitual drunkards. The meeting was held in the saloon, and was largely attended, among those present being Mr. Samuel Morely, M. P.; Sir Robert Carden; the Rev. R. Temple West; the Rev. Ernest Wilberforce; the Rev. F. E. Lloyd-Jones, Ordinary of Newgate; the Rev. J. W. Hosley, Chaplain of the House of Detention, Clerkenwell; Dr. A. Carpenter; the Rev. Dr. Irons; Mr. J. Gurney Fry; the Rev. G. Merrick; Mr. Antrobus, and many more, including a large number of ladies. It was stated that during 1876, no less than 5,588 women were committed for drunkenness to Westminster Prison alone, being an increase of 708 in the year, and of 3,074

in the last six years.—*Brit. Med. Jour.*——Thomas Keith has made 241 ovariotomies with 206 recoveries, a success unrivaled in the history of any capital operation.——*Death of Dr. Clarke.*—After a long and wearing illness, Dr. Edward H. Clarke, of Boston, breathed his last on the evening of November 30. Though it was generally known that his disease was mortal and its termination merely a question of time, yet his death has caused a profound feeling in both private and professional circles. He was born at Norton, Mass., in 1820, and graduated at Harvard in 1841, being first in his class.—*Bost. Med. and Surg. Jour.*

EDITORIAL.

"Nullius addictus jurare in verba magistri."—Hor.

Close of Volume Twenty-four.—This is the period of the year when the various journals in this country are closing the second volume of their issues for the current year, and when their editors are accustomed to be, and are expected to be, a little garrulous. And is it not natural that they should be so; is it not reasonable to suppose that subscribers feel some real interest in the journal or journals of their choice; and is it not equally reasonable that editors should, once a year at least, wish to exchange the formal style of most editorials for a little familiar pen-gossip with their many and widely-scattered friends?

What then is there at present to be said that may interest the readers in regard to this Journal?

Twelve years ago the publishers, in Richmond, Virginia, were busy in issuing the first number of Volume I; and nine years ago, the Journal was moved to Louisville, at the request of the State Medical Society of Kentucky. Since these periods, the work has been very much improved in the matter and manner of its issue. The contributions, material selected, the paper and style of publication, have all been much improved, and if the well-selected writings of able men carefully published, with

frank comments upon the current topics of medical interest, make up a good Journal, it is hoped that this work will successfully bear subjection to such a test.

The articles now appearing in every number of the Journal are usually prepared with such care that their authors deem pamphlet editions of them well worthy of extensive circulation, and comments upon these issues are to be found in most of the first-class journals of this country. While many able journals are to be found throughout the Eastern States, it must have been noticed by readers that the papers of some of the ablest Eastern medical writers appear in this work. The same may be said in regard to many of the best medical writers in the States north of the Ohio; Southern physicians have for years sent many of their choicest contributions to this Journal; while many of the most instructive articles prepared in the trans-Mississippi region have appeared in these pages. From Texas, where this Journal has a large circulation, most valuable papers are frequently sent; and occasionally some practitioner in distant California, and even more distant Oregon, has given through these pages the results of his observation and practice. While these facts are well known to the reader, it may be pardonable in an editor to mention them as evidences in part of the results of twelve years of the hardest labor.

The past three years have been periods of unexampled financial distress in this country, but through the fidelity and promptitude of the subscribers to this Journal, it has not only kept its position fairly before the Public, but has, it is believed, been materially improved in the matter and material of its issues.

During the next year increased efforts will be made to improve the Journal in many of its departments. The London correspondent, whose letter appears in this number, will contribute a series of valuable and instructive letters. The pharmaceutical and chemical departments, both so practical in character, will receive increased care and attention; and no labor will be spared to make the Journal of 1878 far better than that of past years.

The most onerous part of the work is its business department; onerous not only because of the details inseparable from

it, but because of the necessity, so often existing, of calling the attention of the patrons of the Journal to their neglected pecuniary obligations. Of course many of these obligations are neglected frequently from inattention; frequently from the latent hope of there being "a more convenient season," and not infrequently from the dire stress of "the times." Whatever may be the cause, however, it creates a very painful and a most unwelcome duty; that of reminding medical brethren of debts which they have neglected. It is to be hoped that this burden will become consecutively less, and "as business improves" that it will finally disappear.

There is, it is said, a rift discernible in the heavy cloud of pecuniary distress which has for many years so oppressed the people and their practitioners. All will unite in the earnest hope that this is true; and if it be true, what better wish can the editor make for his friends at this season, than that the light of the silver lining may be bountifully reflected upon them all; giving to each, what so few have for years enjoyed, a merry Christmas and a happy New Year.

Pocket Records.—All of the Pocket Records for 1878 have been received at this office. Their publishers are as follows: Lindsay & Blakiston, Philadelphia; W. A. Townsend & Co., New York; Lippincott & Co., Philadelphia; Robert Clarke & Co., Cincinnati, Ohio; D. G. Brinton, M. D., Philadelphia; Ralph Walsh, M. D., Washington. It is difficult to recommend any one of these little pocket volumes above the other. They are all very useful, and the choice will depend more upon the taste or fancy of the purchaser than upon any difference of consequence in their intrinsic merits. Those published by Lindsay & Blakiston, by Townsend, and by Dr. Brinton, have been familiar for years to the Public; the others are recent, and have been known for a few years only; they are fully as good as the others. They vary indefinitely in design, arrangement, contents, bulk, binding, etc., and every possible taste can be gratified. The publishers will please accept thanks. There is with the book of Dr. Walsh a companion business ledger of excellent design, and well worthy of attention.

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